Power Semiconductor Devices

LiUJiNG®
Liujing Electronics

电力半导体器件
파워 반도체 장치

<< 功率模块
Power Modules

<< 平板式半导体器件
Capsule Version Semiconductors

<< 螺旋式半导体器件
Stud Version Semiconductors

<< 桥式整流器、固态继电器、调压模块、散热器、电子电力芯片
Bridge Rectifiers, Soild State Relay, Voltage Regulator Modules, Heatsinks, Electronic Device Chip

윤정전자주식회사
LIUJING RECTIFIER CO.,LTD.

회사소개

Liujing Electronics

회사소개
Company profile

Liujing rectifier Co.,LTD, established since 1998, Liujing is specialized in manufacturing electric semiconductor device. More than 20 years innovation researching and working hard, the company has developed into a tra-nsregional, multiple and comprehensive enterprise integrating scientific researchdesign production and sales. Now liujing is one of the largest manufacturers and exporters of the Electronic Semiconductors Device Controls in China.

The product has obtained national industrial production permit and been certified according to UL,CE,ISO9001:200, ROHS, SGS, CQC. Our products are welcome well at home and abroad. China Liujing rectifier co.,LTD is one of the most competitive the power semiconductor manufacture in china and abroad.

Liujing brand is very famous on power semiconductor devices fields in china. Also, we are one of the leaders in the power semiconductor fields in china.

Liujing mainly manufacture and exporter: ZP Standard Recovery Diode, ZK Fast Recovery Diode, KP Phase Control Thyristor, KS Triac Thyristor, KK Fast Thyristor, KG High Frequency Thyristor Bridge Rectifier, Power Modules Schottky Module, SF Super Fast Recovery Diode Module, Welding Machine Module, Solid State Relay, Solid State Voltage Regulator, Heat Sink Material and so on. Our Products are in strict accordance with the international standards organizations of production.

Right now we have established a series of strong departments like research and development center,purify line ,start-to-end test line,and so on. Now we have been able to sell products to more than 60 different countries.

Our enterprise spirit is unity and struggle delopitation innovation. We have insisted on "excellent quality, best price". We believe in that we will do much better than before with your help. We sincerely work with your stable, reliable and long-term cooperator and enjoy every development and every success in every step together. Welcome to china and visit our company.

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중국윤정전자는 국제표준으로 제품 만들고 있습니다.보통 정류기,다이오드 ,사이리스터,브릿지 다이오드, 파워반도체 모듈,용접기 전용모듈, 고체 계전지,고체 절압기등등 파워반도체,산열기등등 제품 경영하고 있습니다.우리는 끊임없이 성장하면서 신제품 연발 센터,안전생산 라인,모의테스터 라인,완성품 조합 라인,프레싱 라인 등등 생산라인을 세웠습니다.지금은 신제품을 연발하는 기술 엔지니너하고 최신테스터설비, 국제적 인생산기술 가지고 있는 화사입니다.

우리는 자동화설비 수입하면서," 기술 최고,정성 제조" 회사 정신으로 더 높은 품질,강한 경쟁력을 있는 제품 만들 수 있도록 노력하고 있습니다.우리제품은 중국에서 잘 팔릴 뿐만 아니라 미국,유런,동남아시아,중동,아프리카등 60여 개 국가와지역에서도 잘 팔리고 있습니다.우리 화사를 방문주시길 환영합니다

中国·柳晶

Leading the power semiconductor devices

Liujing is aiming to share a better future with customers and partners by providing highly reliable, competitive products and services enabling them to achieve maximum success of business.

연발,설계센터

윤정그룹은 적극적 국내,국외 전시회를 참여함:로시아 전력 전자 전시회,한국 전력 전시회,한국 영점 설비 전시회,브라질 전력 전자 전시회,뭔헤 전자 전시회,상해 전자 전지회,베이징 ESSEN 전지회

국내 최신 생산 라인

국제적 최신 생산 설비

LiUjiNG®
Liujing Electronics

全面提供各种电力
半导体器件解决方案
전문 전력 반도체 솔루션

交流电源设备 교류전원설비
- 交流电源设备
- 输出任意波形
- 交流自动稳压装置(AVR)

直流电源设备 직류전원설비
- 化学电解用
- 发电厂、变电所操作用
- 水处理用
- 充电用
- 电渗析用
- 应急灯用

交流不停电电源装置
교류무정전전원장치
- 数据中心用
- 工厂设备用
- 广播设备用
- 瞬断补偿用
- 管制中心用

光源设备用电源
광원설비전원
- 放映用
- 印刷制版用
- 播音室照明用
- 光学分析用

调光装置、光伏新能源
조광설비, 광선새로운에너지
- 舞台照明用
- 显示器用
- 播音室照明用
- 照明器具

齿科用设备
치과용설비
- 齿科用铸造机
- 齿科用真空电炉

Environment 환경

Information Technology 정보 기술

电力
파워 반
Power

우수한 품질,전문 기술,합리적인 가격,최단 납기, 확고한 신뢰를 받고 있는 파워 전문기업으로써 고객의 다양한 요구에 부응하기 위해 끊임없이 노력하겠습니다.

제품의 안정는 우리를 이영역의 선두 주자가 만들게 되다.제품의 안정은 우리를 이영역의 선두 주자가 만들게 되다

专业提供焊接
电力半导体器件解决方案
전문 용접 반도체 솔루션

专业提供光伏
电力半导体器件解决方案
전문 광선 반도체 솔루션

전문 기술, 최신 설비, 풍부한 경험, 엄격한 품질관리로 우리제품은 큰 시장 점유율을 차지하고 있습니다.

Equipment 설비

Semiconductor 반도체

半导体
도체 장치
Semiconductor

电子设备
전자설비
- 开关电源
- DC-DC变频器

金属表面处理用电源
금속표면처리전원
- 电镀用
- 电脉涂装用
- 电解用
- 直流积分电流计
- 铝阳极化处理用

洗涤机 세정설비
- 各种洗涤系统
- 超声波震荡装置
- 超声波洗涤装置
- 超声波振子

중국에서 제일 전문적인 전력반도체 제조회사

电炉用电源、中频炉
전기로, 중파로 전원
- 感应加热用
- 电弧加热用
- 直接/间接加热用
- 功率调节装置

电弧焊机、焊接设备用模块
용접설비모듈
- 直流电弧焊机
- 电阻焊机用电源
- 等离子电弧装置

专业提供大功率
散热器解决方案
전문 전력 산열기 솔루션

Liujing Electronics

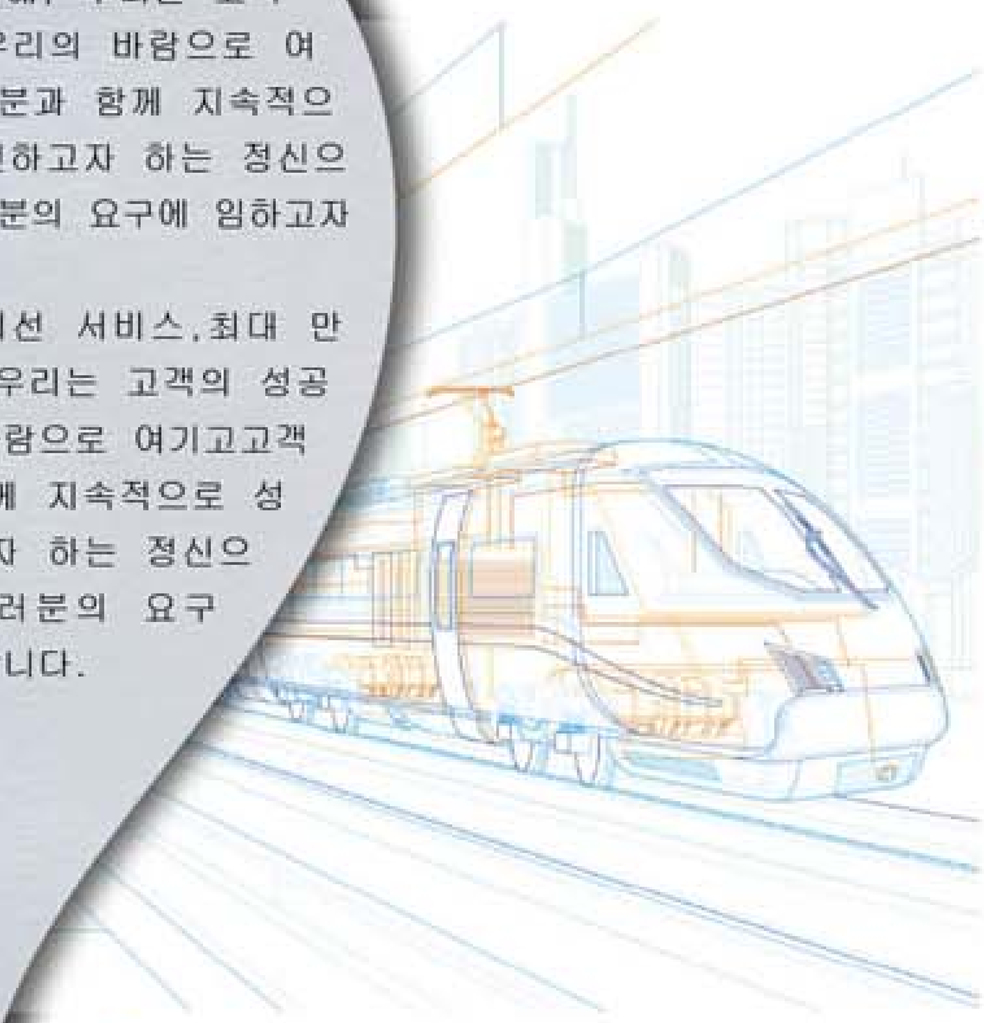
사용분야
Application Field

To implement brand management is our goal pursued for enterprise developing forward, and also the powerful guarantee while competing with fellow traders. However the precondition for establishing a brand is the reliability and stability of product quality. Therefore, we lead in the international quality management system and hold squareness and keep improving for each detail and link to try to actualize the standardization and systematization management for product qulity and to make "Liujing" brand be outstanding and brilliant for its good quality.

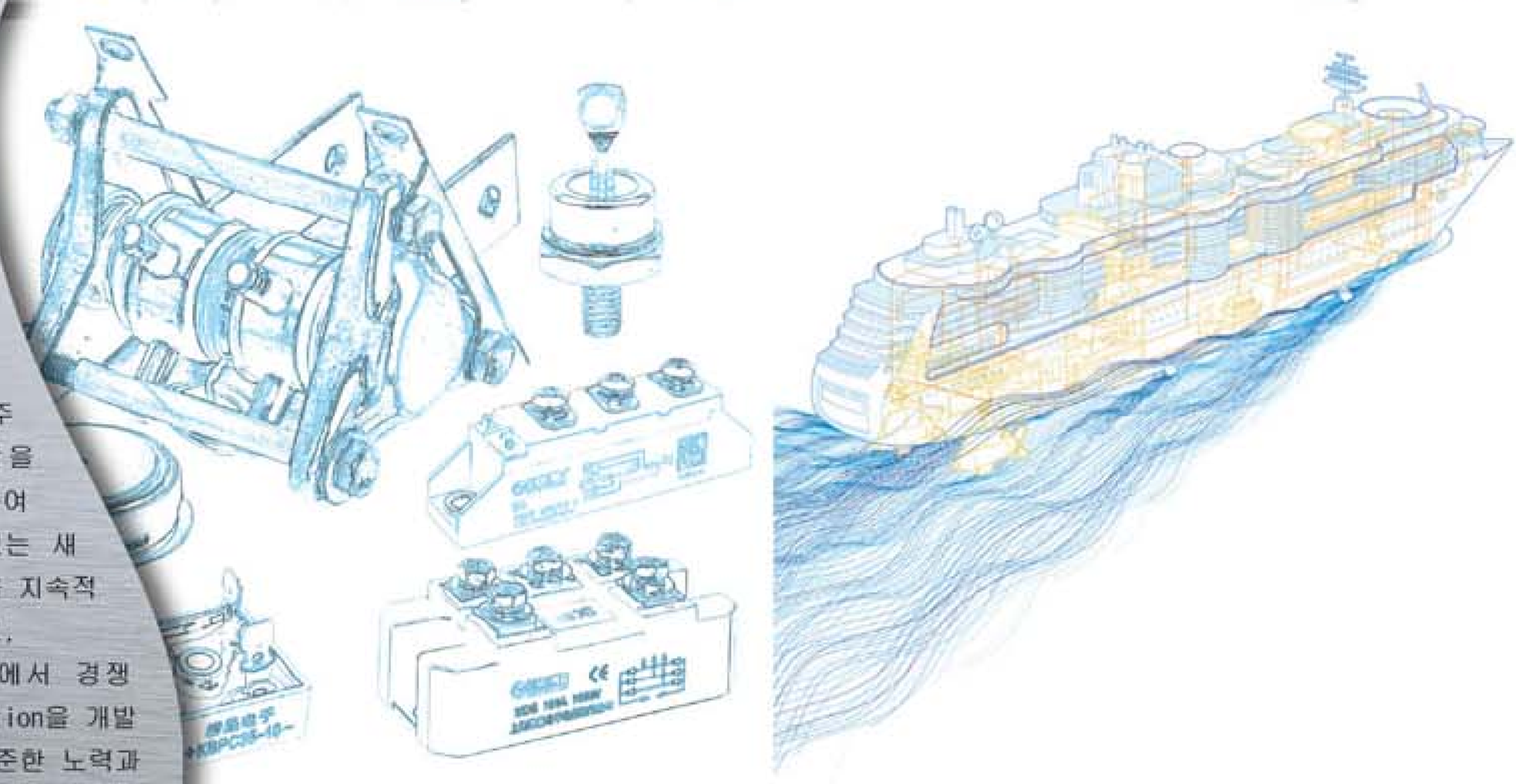
우수한 품질,전문 기술,합리적인 가격,최단 납기, 확고한 신뢰를 받고 있는 파워 전문기업으로써 고객의 다양한 요구에 부응하기 위해 끊임없이 노력하겠습니다.

최고 품질,최선 서비스,최대 만족에 위해, 우리는 고객의 성공을 우리의 바람으로 여기고고객여러분과 함께 지속적으로 성장 발전하고자 하는 정신으로 고객 여러분의 요구에 임하고자 합니다.

최고 품질,최선 서비스,최대 만족에 위해, 우리는 고객의 성공을 우리의 바람으로 여기고고객여러분과 함께 지속적으로 성장 발전하고자 하는 정신으로 고객 여러분의 요구에 임하고자합니다.



품질관리
전력전자 시장 변화의 주도적인 역할을 감당하기 위하여 신뢰할 수 있는 새로운 제품들을 지속적으로 소개하고,
고객의 입장에서 경쟁력 있는 Solution을 개발하는 등의 꾸준한 노력과 함께
고객을 최우선으로 생각하는 경영으로 오늘에 이르게 되었습니다.



符号及术语 전문 용어 Symboly

符号	表述意义	
$I_{F(AV)}$	Average forward current	正向平均电流
I_{FM}	Peak collector current	正向峰值电流
$I_{F(RMS)}$	RMS forward current	正向电流有效值
I_{FSM}	Surge forward current	正向浪涌电流
$I_{T(AV)}$	Average on-state current	通态平均电流
I_{TM}	Peak on-state current	通态峰值电流
$I_{T(RMS)}$	RMS on-state current	通态电流有效值
I_{TSM}	Surge on-state current	通态浪涌电流
I_{RRM}	Repetitive peak reverse current	反向重复峰值漏电流
I_{DRM}	Repetitive peak off-state current	断态重复峰值漏电流
Id	Average convertor output current	直流输出平均电流
I_G	Gate current	门极电流
I_{GT}	Gate trigger current	门极触发电流
I_{GD}	Gate un-trigger current	门极不触发电流
I_H	Holding current	维持电流
I^2t	Maximum rated value I^2t	最大额定值
Irr	Reverse recovery peak current	反向恢复峰值电流
V_{RRM}	Repetitive peak reverse voltage	反向重复峰值电压
V_{DRM}	Repetitive peak off-state voltage	断态重复峰值电压
V_F	Forward voltage	正向电压
V_{FM}	Peak forward voltage drop	正向峰值压降
V_T	On-state voltage	通态电压
V_{TM}	Peak on-state voltage drop	通态峰值压降
V_G	Gate voltage	门极电压
V_{GT}	Gate trigger voltage	门极触发电压
V_{GD}	Gate un-trigger voltage	门极不触发电压
V_D	Average convertor output voltage	直流输出平均电压
Viso	Insulation voltage	绝缘电压
V_{RMS}	RMS voltage value	电压有效值
V_{TO}	On-state threshold voltage	通态临界电压
V_{FO}	Forward threshold voltage	正向临界电压
di/dt	Rate of rise of on-state current	通态电流上升率
dv/dt	Rate of rise of on-state voltage	通态电压上升率
rT	On-state slope resistance	通态倾斜电阻
rF	Forward slope resistance	正向倾斜电阻
Rth	Thermal resistance	热阻
Rth(j-c)	Thermal resistance (junction to case)	热阻（连接点到外壳）
Rth(j-hs)	Thermal resistance (junction to heatsink)	热阻（连接点到散热器）
Rth(c-hs)	Thermal resistance (case to heatsink)	热阻（外壳至散热器）
Rth(hs-a)	Thermal resistance (heatsink to ambient)	热阻（散热器至环境）
Zth	Flash thermal resistance	瞬时热阻
Ta	Ambient temperature	环境温度
T_{HS}	Heatsink temperature	散热器温度
Tc	Case temperature	外壳温度
Tstg	Storage temperature	储藏温度
Tj	Junction temperature	连接点温度
Tjm	Maximum junction temperature	最高额定结温
tp	Pulse time	脉冲时间
td	Delay time	延迟时间
tgd	Gate delay time	门极延迟时间
tq	Turn-off time	关断时间
tr	Rise time	上升时间
trr	Reverse recovery time	反向恢复时间
Qrr	Recovered charge	反向恢复电荷
Wt	Weight	重量
M^2	Mounting power	安装力

<< 功率模块 파워모듈
Power Modules

普通整流管模块 — 01
Diode Modules

普通晶闸管模块 — 02
Thyristor Modules

普通晶闸管、整流管混合模块 — 03
Thyristor / Diode Modules

非绝缘型整流管及混合模块(电焊机专用模块) — 04
Non-isolated Diode & Diode / Thyristor Modules (Welding used)

单相、三相整流桥模块 — 05
Single-phase / Three-phase Bridge Rectifier Modules

单相半控桥、三相全控桥模块 — 06
Single-phase Semi-control / Three-phase Control Bridge Modules

肖特基模块 — 07
Schottky Modules

模块外形尺寸 — 07-08
Module Dimensions

普通整流管模块 Diode Modules

特征

- 芯片与底板电气绝缘，2500V交流电压
- 国际标准封装
- 全压接结构，优良的温度特性和功率循环能力
- 350A以下模块皆为强迫风冷，400A以上模块，既可选用风冷，也可选用水冷
- 安装简单，使用维修方便
- 体积小、重量轻
- 真空+氢气保护焊接技术

Features

- Electrically-isolated chip and baseboard AC 2500V
- Sealing package according to international standard
- Full crimping structure, sensitive to temperature and power cycle duty
- Modules under 350A with compulsive wind-cooling. Modules under 400A either with wind-cooling or water-cooling
- Convenient installation, use and maintenance
- Compact and lightweight
- Welding technique under the protection of vacuum and hydrogen gas

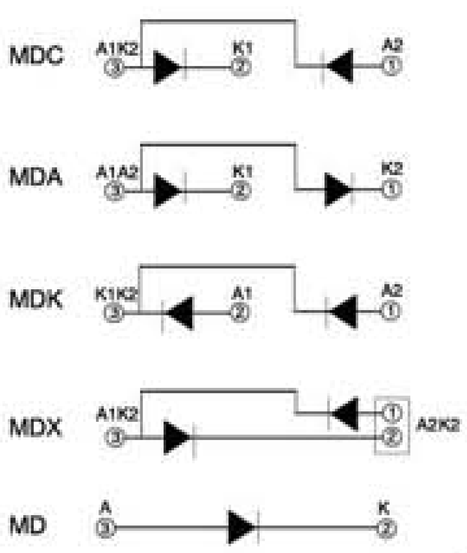
典型应用

- 仪器设备的直流电源
- 交直流电机控制
- 各种整流电源
- 电机软起动
- 电焊机
- 变频器
- 电池充放电

Typical Applications

- DC power supply for instrument
- and equipment
- AC/DC motor controls
- Various rectifying power supplies
- Soft start
- Welder
- Converter
- Battery charge and discharge

电路图 Circuit Diagram



普通整流管模块 Diode Modules (MDC, MDK, MDA, MDX, MD)

型号 Type	正向平均电流 $I_{F(AV)}$	反向重复峰值电压 V_{RRM}	通态峰值电压/电流 V_{TM}/I_{TM}	反向重复峰值电流 I_{RRM}	正向电流有效值 $I_{F(RMS)}$	最高额定结温 T_{jm}	绝缘电压 V_{iso}	外型 Outline
	A	V	V/A	mA	A	℃	V(AC)	
MD × 25A	25	400~2600	1.5/80	8	41	150	2500	101F
MD × 55A	55	400~2600	1.5/170	8	86	150	2500	101F
MD × 70A	70	400~2600	1.5/270	8	110	150	2500	201F
MD × 90A	90	400~2600	1.5/270	8	141	150	2500	201F
MD × 110A	110	400~2600	1.5/330	8	173	150	2500	201F
MD × 130A	130	400~2600	1.5/410	12	212	150	2500	301F
MD × 160A	160	400~2600	1.5/480	12	251	150	2500	301F
MD × 200A	200	400~2600	1.5/600	12	314	150	2500	301F/401F
MD × 250A	250	400~2600	1.5/750	20	393	150	2500	401F
MD × 300A	300	400~2600	1.5/900	20	471	150	2500	401F
MD × 400A	400	400~2600	1.65/1000	40	640	150	2500	501F
MD × 500A	500	400~2600	1.65/1500	40	785	150	2500	501F
MD × 600A	600	400~2600	1.65/2000	40	785	150	2500	601F
MD × 800A	800	400~2600	1.65/2400	40	785	150	2500	601F
MD × 1000A	1000	400~2600	1.65/3000	40	785	150	2500	701F
MD × 500A*	500	400~2600	1.65/1500	40	785	150	2500	801F
MD × 800A*	800	400~2600	1.65/2400	40	1256	150	2500	901F

注：*水冷模块water-cooling 型号栏中MT × 表示MDC、MDK、MDA、MDX、MD中任一种。

进口型号RM、SKKD、DD、MDD、2RI、100L等所对应的国内型号以电路图为准。

Note: MDX in type column of water-cooling module represents any one of import models of MDC, MDK, MDA, MDX, MD, etc.
The corresponding home-made models of RM, SKKD, DD, MDD, 2RI and 100L, subject to circuit diagram.

普通晶闸管模块 Thyristor Modules

特征

- 芯片与底板电气绝缘，2500V交流电压
- 国际标准封装
- 全压接结构，优良的温度特性和功率循环能力
- 350A以下模块皆为强迫风冷，400A以上模块，既可选用风冷，也可选用水冷
- 安装简单，使用维护方便
- 体积小，重量轻
- 真空+氢气保护焊接技术

典型应用

- 交直流电机控制
- 各种整流电源
- 工业加热控制
- 调光
- 无触点开关
- 电机软起动
- 静止无功补偿
- 电焊机
- 变频器
- UPS电源
- 电池充放电

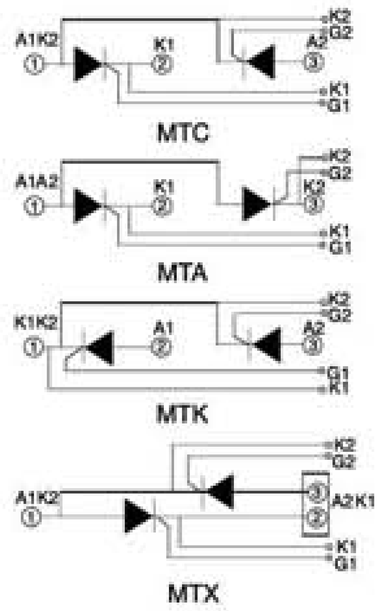
说明

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- 除非另作说明，I_{GT}、V_{GT}、I_H、V_{TM}、V_{TM}、V_{iso}均为25℃测试值。表中其它参数皆在T_{jm}下的测试值。$I^2t=I^2_{TSM}t_W/2$；t_W

Specifications

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- Unless specified otherwise I_{GT}, V_{GT}, I_H, V_{TM}, V_{TM}, V_{iso} are measured values at 25℃. Other parameters in the form are measured values at T_{jm}. $I^2t=I^2_{TSM}t_W/2$; t_W

电路图 Circuit Diagram



Features

- Electrically-isolated chip and baseboard AC 2500V
- Sealing package according to international standard
- Full crimping structure, sensitive to temperature and power cycle duty
- Modules under 350A with compulsive wind-cooling. Modules under 400A either with wind-cooling or water-cooling
- Convenient installation, use and maintenance
- Compact and lightweight
- Welding technique under the protection of vacuum and hydrogen gas

Typical Applications

- AC & DC motor control
- Various rectifying power supply
- Industrial heating control
- Dimming
- Contactless switch
- Motor soft start
- Static reactive compensation
- Welder
- Frequency converter
- UPS power supply
- Battery charge and discharge

普通晶闸管模块 Thyristor Modules (MTC, MTK, MTA, MTX, MT)

型号 Type	通态平均电流 $I_{T(AV)}$	反向断态重复峰值电压 V_{DRM} V_{RRM}	断态电压临界上升率 dv/dt	通态电流临界上升率 di/dt	正反向重复峰值电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压/电流 V_{TM}/I_{TM}	最高额定结温 T_{jm}	绝缘电压 V_{iso}	外型 Outline
						25℃						
	A	V	V/μs	A/μs	mA	mA	V	mA	V/A	℃	V(AC)	
MT×25A	25	400~2600	800	50	8	100	2.5	100	1.5/80	125	2500	101F
MT×55A	55	400~2600	800	50	8	100	2.5	100	1.5/80	125	2500	101F
MT×70A	70	400~2600	800	50	10	100	2.5	100	1.9/170	125	2500	201F
MT×90A	90	400~2600	800	100	15	100	2.5	100	1.9/270	125	2500	201F
MT×110A	110	400~2600	800	100	20	100	2.5	100	1.9/330	125	2500	201F
MT×130A	130	400~2600	800	100	25	150	2.5	100	1.9/410	125	2500	301F
MT×160A	160	400~2600	800	100	25	150	2.5	100	1.9/480	125	2500	301F
MT×200A	200	400~2600	800	100	30	180	2.5	100	1.9/600	125	2500	401F
MT×250A	250	400~2600	800	100	30	180	2.5	100	1.9/750	125	2500	401F
MT×300A	300	400~2600	800	100	40	180	2.5	100	1.9/900	125	2500	401F
MT×400A	400	400~2600	800	100	40	200	3.0	100	1.9/1050	125	2500	501F
MT×500A	500	400~2600	800	100	40	200	3.0	100	1.9/1500	125	2500	501F
MT×600A	600	400~2600	800	100	40	200	3.0	100	1.9/2000	125	2500	601F
MT×800A	800	400~2600	800	100	40	200	3.0	100	1.9/2400	125	2500	701F
MT×1000A	1000	400~2600	800	100	40	200	3.0	100	1.9/3000	125	2500	701F
MT×500A*	500	400~2600	800	100	40	200	3.0	100	1.9/1500	125	2500	901F
MT×800A*	800	400~2600	800	100	40	200	3.0	100	1.9/2400	125	2500	111F

注: *水冷模块water-cooling 型号栏中MT×表示MTC、MTK、MTA、MTX、MT中任一种。

进口型号PK、SKKT、IR、EMGE、TM、MSG、MCC、MTT等所对应的国内型号以电路图为准。

Note: MTX in type column of water-cooling module represents any one of import models of MTC, MTK, MTA, MTX, MT, etc.

The corresponding home-made models of PK, SKKT, IR, EMGE, TM, MSG, MCC and MTT, subject to circuit diagram.

普通晶闸管、整流管混合模块 Thyristor / Diode Modules

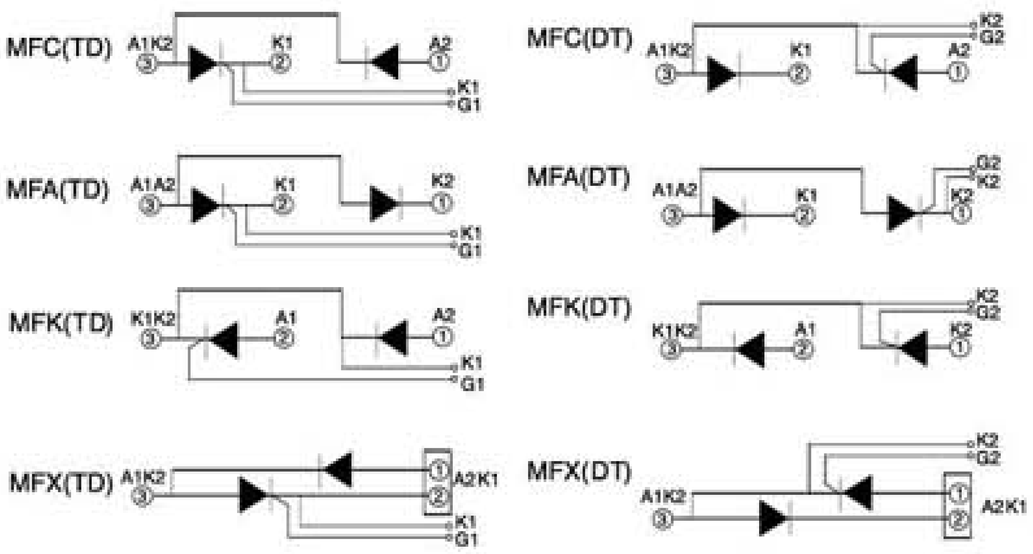
特征

- 芯片与底板电气绝缘，2500V交流电压
- 国际标准封装
- 全压接结构，优良的温度特性和功率循环能力
- 350A以下模块皆为强迫风冷，400A以上模块，既可选用风冷，也可选用水冷
- 安装简单，使用维护方便
- 体积小、重量轻
- 真空+氢气保护焊接技术

典型应用

- 交直流电机控制
- 各种整流电源
- 工业加热控制
- 调光
- 无触点开关
- 电机软起动
- 静止无功补偿
- 电焊机
- 变频器
- UPS电源
- 电池充放电

电路图 Circuit Diagram



Features

- Electrically-isolated chip and baseboard AC 2500V
- Sealing package according to international standard
- Full crimping structure, sensitive to temperature and power cycle duty
- Modules under 350A with compulsive wind-cooling. Modules under 400A either with wind-cooling or water-cooling
- Convenient installation, use and maintenance
- Compact and lightweight
- Welding technique under the protection of vacuum and hydrogen gas

Typical Applications

- AC & DC motor control
- Various rectifying power supply
- Industrial heating control
- Dimming
- Contactless switch
- Motor soft start
- Static reactive compensation
- Welder
- Frequency converter
- UPS power supply
- Battery charge and discharge

普通晶闸管、整流管混合模块 Thyristor / Diode Modules (MFC, MFA, MFK, MFX)

型号Type	通态平均电流 $I_{T(AV)}$	反向断态重复峰值电压 V_{DRM} V_{RRM}	断态电压临界上升率 dv/dt	通态电流临界上升率 di/dt	正反向重复峰值电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压/电流 V_{TM}/I_{TM}	一周波正向通态不重复浪涌电流 I_{TSM} I_{FSM}	最高额定结温 T_{jm}	绝缘电压 V_{iso}	外型 Outline
						25℃							
	A	V	V/μs	A/μs	mA	mA	V	mA	V/A	Ax10³	℃	V(AC)	
MF×25A	25	400~2600	800	50	8	100	2.5	100	1.69/80	0.55	125	2500	101F
MF×55A	55	400~2600	800	50	8	100	2.5	100	1.69/170	1.25	125	2500	101F
MF×70A	70	400~2600	800	50	8	100	2.5	100	1.9/170	1.60	125	2500	201F
MF×90A	90	400~2600	800	100	15	100	2.5	100	1.9/270	2.00	125	2500	201F
MF×110A	110	400~2600	800	100	20	100	2.5	100	1.9/330	2.40	125	2500	201F
MF×130A	130	400~2600	800	100	20	150	2.5	100	1.9/410	3.80	125	2500	301F
MF×160A	160	400~2600	800	100	25	150	2.5	100	1.9/480	5.40	125	2500	301F
MF×200A	200	400~2600	800	100	30	180	2.5	100	1.9/600	7.20	125	2500	401F-1
MF×250A	250	400~2600	800	100	40	180	2.5	100	1.9/750	8.50	125	2500	401F
MF×300A	300	400~2600	800	100	30	180	2.5	100	1.9/900	9.30	125	2500	401F
MF×400A	400	400~2600	800	100	40	200	3.0	100	1.9/1050	14.0	125	2500	501F
MF×500A	500	400~2600	800	100	50	200	3.0	100	1.9/1500	16.0	125	2500	501F
MF×600A	600	400~2600	800	100	50	200	3.0	100	1.9/2000	16.0	125	2500	601F
MF×800A	800	400~2600	800	100	50	200	3.0	100	1.9/2400	16.0	125	2500	701F
MF×1000A	1000	400~2600	800	100	50	200	3.0	100	1.9/3000	16.0	125	2500	701F
MF×500A*	500	400~2600	800	100	40	200	3.0	100	1.9/1500	11.0	125	2500	901F
MF×800A*	800	400~2600	800	100	40	200	3.0	100	1.9/2400	16.0	125	2500	111F

注: *水冷模块water-cooling 型号栏中MF×表示MFC、MFK、MFA、MFX中任一种。

进口型号TM、SKKH、PD、IR、PE、TD等所对应的国内型号以电路图为准。

Note: MFX in type column of water-cooling module represents any one of import models of MFC, MFK, MFA, MFX, etc.

The corresponding home-made models of TM, SKKH, PD, IR, PE and TD, subject to circuit diagram.

非绝缘型整流管及混合模块(电焊机专用模块) Non-isolated Diode & Diode / Thyristor Modules

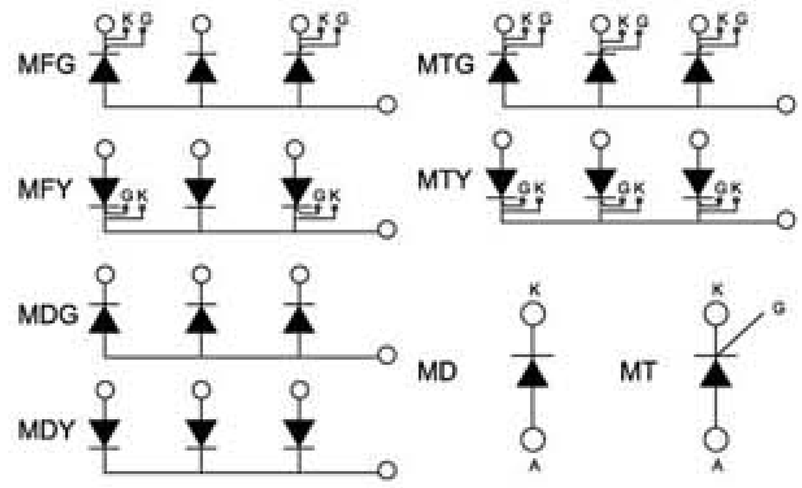
特点

- 非绝缘、底板为公共电极
- 国际标准封装
- 全压接结构，优良的温度特性和功率循环能力
- 最高工作结温达150℃
- 高浪涌电流
- 低正向正降

Features

- Non-insolated, baseboard as common electrode
- Sealing package according to international standard
- Full crimping structure, sensitive to temperature and power cycle duty
- Max. work junction temperature up to 150℃
- High surge current
- Low forward voltage drop

电路图 Circuit Diagram



非绝缘型晶闸管模块 Non-isolated Thyristor Modules (MTG, MTY, MFG, MFY)

型号Type	通态平均电流	反向断态重复峰值电压	断态电压临界上升率	通态电流临界上升率	正反向重复峰值电流	触发电流	触发电压	维持电流	通态峰值电压/电流	最高额定结温	外型 Outline
	$I_{T(AV)}$	V_{DRM} V_{RRM}	dv/d_t	d/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	T_{jm}	
	A	V	V/μs	A/μs	mA	mA	V	mA	V/A	℃	
MT × 70A	70	400~2600	800	100	12	100	2.5	100	1.67/210	125	103B 102B 101B
MT × 110A	110	400~2600	800	100	12	100	2.5	100	1.67/330	125	103B 102B 101B
MT × 160A	160	400~2600	800	100	12	100	2.5	100	1.67/480	125	103B 102B 101B
MT × 200A	200	400~2600	800	100	20	150	2.5	100	1.70/600	125	104B
MT × 250A	250	400~2600	800	100	20	150	2.5	100	1.70/750	125	104B
MT × 300A	300	400~2600	800	100	25	150	2.5	100	1.70/900	125	108 x 63

注: 型号栏中MT × 表示MTG、MTY中任一种。 Notice: MT × in type column represents MTG or MTY.

非绝缘型整流管模块 Non-isolated Diode Modules (MDG, MDY)

型号 Type	正向平均电流	反向重复峰值电压	反向重复峰值电流	通态峰值电压/电流	正向电流有效值	最高额定结温	外型 Outline
	$I_{F(AV)}$	V_{RRM}	I_{RRM}	V_{TM}/I_{TM}	$I_{F(RMS)}$	T_{jm}	
	A	V	mA	V/A	A	℃	
MD × 70A	70	400~2600	12	1.57/210	157	150	201F 101B
MD × 110A	110	400~2600	12	1.57/330	157	150	201F 101B
MD × 160A	160	400~2600	12	1.57/480	236	150	103B 102B 101B
MD × 200A	200	400~2600	20	1.60/600	314	150	104B
MD × 250A	250	400~2600	20	1.60/750	393	150	104B
MD × 300A	300	400~2600	25	1.60/900	471	150	104B

注: 型号栏中MD × 表示MDG、MDY中任一种。 Notice: MD × in type column represents MDG or MDY.

电焊机专用模块 Welding Used Modules (MT, MD)

型号 Type	正向通态平均电流	反向断态重复峰值电压	断态电压临界上升率	通态电流临界上升率	正反向重复峰值电流	触发电流	触发电压	维持电流	通态峰值电压/电流	最高额定结温	外型 Outline
	$I_{T(AV)}$	V_{DRM} V_{RRM}	dv/d_t	d/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	T_{jm}	
	A	V	V/μs	A/μs	mA	mA	V	mA	V/A	℃	
MT200A	200	800~1600	800	100	20	150	2.5	100	1.7/600	125	100B
MT300A	300	800~1600	800	100	25	150	2.5	100	1.7/900	125	100B
MT500A	500	800~1600	800	100	30	150	2.5	100	1.7/1500	125	106B
MD200A	200	800~1600	800	100	20	150	2.5	100	1.6/600	125	100B
MD300A	300	800~1600	800	100	25	150	2.5	100	1.6/900	125	100B
MD500A	500	800~1600	800	100	30	150	2.5	100	1.6/1500	125	106B

单相、三相整流桥模块 Single-phase / Three-phase Bridge Modules

特征

- 芯片与底板电气绝缘，2500V交流电压
- 国际标准封装
- 真空+氢气保护焊接技术
- 安装简单，使用维护方便
- 体积小，重量轻
- 最高工作结温达150℃
- 正向压降小

Features

- Electrically-isolated chip and baseboard AC 2500V
- Welding technique under the protection of vacuum and hydrogen gas
- Convenient installation, use and maintenance
- Compact and lightweight
- Max. work junction temperature up to 150℃
- Low forward voltage drop

典型应用

- 仪器设备的直流电源
- PWM变频器的输入整流电源
- 直流电机励磁电源
- 开关电源的输入整流
- 软启动电容充电
- 电气拖动和辅助电流
- 逆变焊机
- 电流充电直流电源

Typical Applications

- DC power supply for instrument equipment
- Input of PWM frequency converter
- Rectifying power supply
- Excitation power supply for DC motor
- Input of switch powe supply and auxiliary current
- Inverter current
- DC power supply for current charge

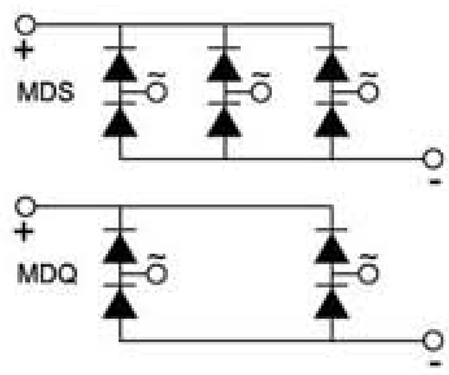
说明

- $V_{RSM}=V_{RRM}+200V$
- 除V_{FM}、V_{ISO}外，表中其它参数皆在T_{jm}下的测试值

Specifications

- $V_{RSM}=V_{RRM}+200V$
- Unless specified otherwise V_{FM}, V_{ISO} are measured values at. Other parameters in the form are measured values at T_{jm}.

电路图 Circuit Diagram



三相桥模块 Three-phase Rectifier Bridge Modules (MDS)

型号 Type	直流输出电流 I_d A	三相输入正向平均电流 $I_{F(AV)}$ A	壳温 T_c ℃	反向重复峰值电压 V_{RRM} V	反向重复峰值电流 I_{RRM} mA	通态峰值电压/电流 V_{TM}/I_{TM} V/A	最高额定结温 T_{jm} ℃	绝缘电压 V_{ISO} V(AC)	外型 Outline
MDS30	30	10	100	600~2000	8	1.45/30	150	2500	102A 102A-1
MDS60	60	20	100	600~2000	8	1.45/60	150	2500	102A 102A-1
MDS75	75	30	100	600~2000	10	1.45/80	150	2500	102A 102A-1
MDS100	100	35	100	600~2000	10	1.45/100	150	2500	102A 102A-1
MDS150	150	50	100	600~2000	10	1.50/150	150	2500	103A 103A-1
MDS200	200	68	100	600~2000	10	1.50/200	150	2500	103A 103A-1
MDS300	300	100	100	600~2000	10	1.50/300	150	2500	104A
MDS400	400	135	100	600~2000	10	1.50/400	150	2500	104A
MDS500	500	168	100	600~2000	10	1.50/500	150	2500	105A
MDS600	600	200	100	600~2000	10	1.50/600	150	2500	105A
MDS800	800	270	100	600~2000	10	1.50/800	150	2500	105A
MDS1000	1000	330	100	600~2000	10	1.50/1000	150	2500	105A

单相桥模块 Single-phase Rectifier Bridge Modules (MDQ)

型号 Type	直流输出电流 I_d A	单相输入正向平均电流 $I_{F(AV)}$ A	壳温 T_c ℃	反向重复峰值电压 V_{RRM} V	反向重复峰值电流 I_{RRM} mA	通态峰值电压/电流 V_{TM}/I_{TM} V/A	最高额定结温 T_{jm} ℃	绝缘电压 V_{ISO} V(AC)	外型 Outline
MDQ30	30	15	100	600~2000	8	1.45/45	150	2500	102A 102A-1
MDQ60	60	30	100	600~2000	8	1.45/90	150	2500	102A 102A-1
MDQ75	75	40	100	600~2000	10	1.45/130	150	2500	102A 102A-1
MDQ100	100	50	100	600~2000	10	1.45/150	150	2500	102A 102A-1
MDQ150	150	75	100	600~2000	10	1.50/225	150	2500	103A 103A-1
MDQ200	200	100	100	600~2000	10	1.50/300	150	2500	103A 103A-1
MDQ300	300	150	100	600~2000	10	1.50/450	150	2500	104A
MDQ400	400	200	100	600~2000	10	1.50/600	150	2500	104A
MDQ500	500	250	100	600~2000	10	1.50/750	150	2500	105A
MDQ600	600	300	100	600~2000	10	1.50/900	150	2500	105A
MDQ800	800	400	100	600~2000	10	1.50/1200	150	2500	105A
MDQ1000	1000	500	100	600~2000	10	1.50/1500	150	2500	105A

进口型号6RI、RM、DF、SKCH、VHF等所对应的国内型号以电路图为准。

The corresponding home-made models of SKCH, DF, VHF, 6RI and RM, subject to circuit diagram.

单相半控桥、三相全控桥模块 Single-phase Semi-control / Three-phase Control Bridge Modules

特征

- 芯片与底板电气绝缘，2500V交流电压
- 国际标准封装
- 真空+氢气保护焊接技术
- 安装简单，使用维护方便
- 体积小，重量轻
- 最高工作结温达150℃
- 正向压降小

Features

- Electrically-isolated chip and baseboard AC 2500V
- Sealing package according to international standard
- Welding technique under the protection of vacuum and hydrogen gas
- Convenient installation, use and maintenance
- Compact and lightweight
- Max. work junction temperature up to 150℃
- Low forward voltage drop

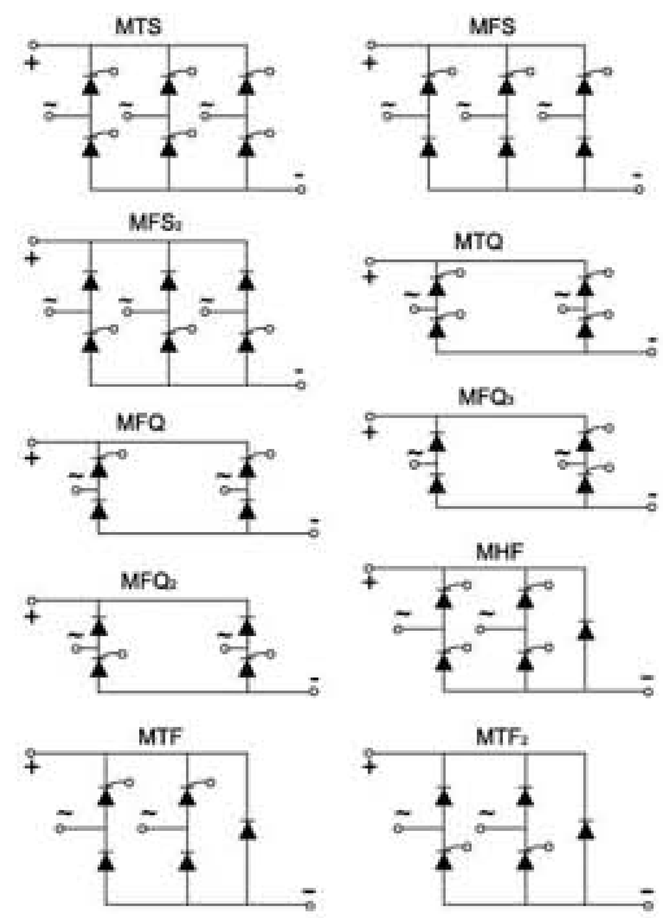
典型应用

- 仪器设备的直流电源
- PWM变频器的输入整流电源
- 直流电机励磁电源
- 开关电源的输入整流
- 软启动电容充电
- 电气拖动和辅助电流
- 逆变焊机
- 电流充电直流电源

Typical Applications

- DC power supply for instrument equipment
- Input of PWM frequency converter
- Rectifying power supply
- Excitation power supply for DC motor
- Rectifying input of switch power supply
- Soft start capacitor charging
- Electric power drag and auxiliary current
- Inverter current
- DC power supply for current charge

电路图 Circuit Diagram



三相控桥/三相半控桥 Three-phase Control Bridge/Three-phase Semi-control Bridge

型号 Type	直流输出电流 I_d A	三相输入正向平均电流 $I_{F(AV)}$ A	反向断态重复峰值电压 V_{DRM} V_{RRM} V	正反向重复峰值电流 I_{DRM} I_{RRM} mA	通态峰值电压/电流 V_{TM}/I_{TM} V/A	触发电流 I_{GT} mA	触发电压 V_{GT} V	维持电流 I_H mA	断态电压临界上升率 dv/dt V/μs	通态电流临界上升率 di/dt A/μs	最高额定结温 T_{jm} ℃	绝缘电压 V_{iso} V(AC)	外型 Outline
MT×60	60	20	400~2600	8	1.45/60	100	2.5	100	800	50	125	2500	102A
MT×90	90	30	400~2600	15	1.45/90	100	2.5	100	800	100	125	2500	102A
MT×130	130	44	400~2600	25	1.45/130	150	2.5	100	800	100	125	2500	103A-1
MT×150	150	50	400~2600	25	1.50/150	180	2.5	100	800	100	125	2500	103A-1
MT×200	200	67	400~2600	30	1.50/200	180	2.5	100	800	100	125	2500	104A
MT×300	300	100	400~2600	40	1.50/300	180	2.5	100	800	100	125	2500	104A
MT×450	450	150	400~2600	40	1.50/450	200	3.0	100	800	100	125	2500	104A

注: MTX表示MTS、MFS、MFS_2中的任何一种相对上面电路图。

单相控桥/单相半控桥 Single-phase Control Bridge/Single-phase Semi-control Bridge

型号 Type	直流输出电流 I_d A	单相输入正向平均电流 $I_{F(AV)}$ A	反向断态重复峰值电压 V_{DRM} V_{RRM} V	正反向重复峰值电流 I_{DRM} I_{RRM} mA	通态峰值电压/电流 V_{TM}/I_{TM} V/A	触发电流 I_{GT} mA	触发电压 V_{GT} V	维持电流 I_H mA	断态电压临界上升率 dv/dt V/μs	通态电流临界上升率 di/dt A/μs	最高额定结温 T_{jm} ℃	绝缘电压 V_{iso} V(AC)	外型 Outline
MT×60	60	30	400~2600	8	1.45/90	100	2.5	100	800	50	125	2500	102A
MT×90	90	45	400~2600	15	1.45/135	100	2.5	100	800	100	125	2500	102A
MT×130	130	65	400~2600	25	1.45/195	150	2.5	100	800	100	125	2500	103A-1
MT×150	150	75	400~2600	25	1.50/225	180	2.5	100	800	100	125	2500	103A-1
MT×200	200	100	400~2600	30	1.50/300	180	2.5	100	800	100	125	2500	104A
MT×300	300	150	400~2600	40	1.50/450	180	2.5	100	800	100	125	2500	104A
MT×450	450	225	400~2600	40	1.50/675	200	3.0	100	800	100	125	2500	104A

注: MTX表示MTQ、MFQ、MFQ_2、MFQ_3、MHF、MTF、MTF_2中的任何一种相对上面电路图。

LiUjiNG® Liujing Electronics

CE PICC CQC ISO9001:2000 RoHS

肖特基模块 Schottky Modules

特征

- 正向平均电流：100-300A
- 反向重复峰值电压：25-200V
- 反向恢复时间：50-200ns

Features

- $I_{F(AV)}$: 100-300A
- V_{RRM}: 25-200V
- Reverse recovery time: 50-200ns

典型应用

- UPS
- 高频电焊机
- 高频电镀电源

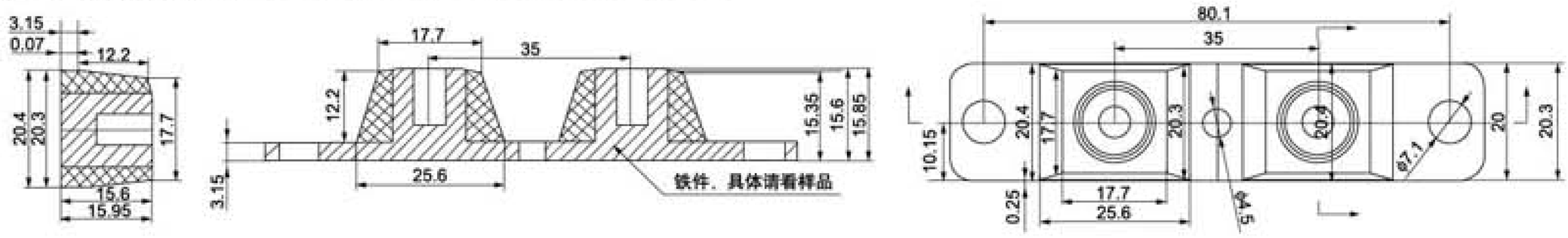
Typical Applications

- UPS
- High-frequency welder
- High-frequency electroplating power supply

肖特基模块参数 Schottky Module Parameters (MURP MBRP)

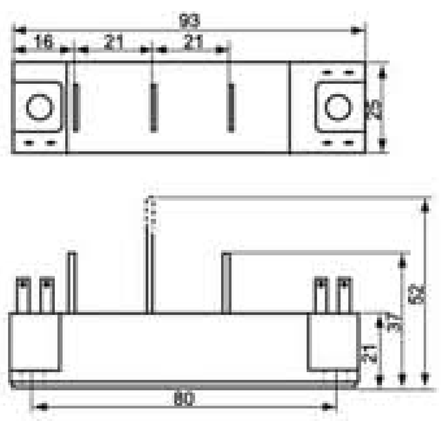
型号 Type	正向平均电流 $I_{F(AV)}$ A	正向平均电压 V_{FM} V	反向重复峰值电压 V_{RRM} V	反向重复峰值电流 I_{RRM} mA	结壳热阻 R_{jc} ℃/W	反向恢复时间 T_{rr} ns
MURP100A	100	≤1.1	25~200	≤2	≤0.2	≤100
MURP200A	200	≤1.1	25~200	≤2	≤0.1	≤150
MURP300A	300	≤1.1	25~200	≤2	≤0.08	≤150
MURP400A	400	≤1.1	25~200	≤2	≤0.07	≤150
MURP500A	500	≤1.1	25~200	≤2	≤0.06	≤150

肖特基模块外形尺寸 Schottky Module External Dimensions

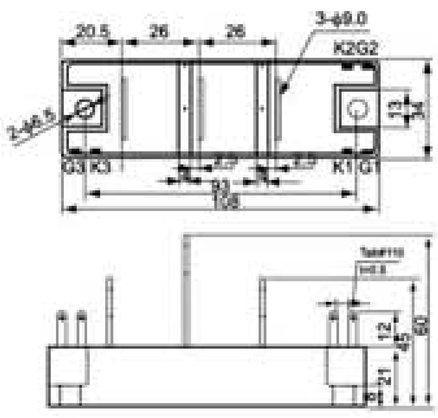


模块外形尺寸 Module Dimensions

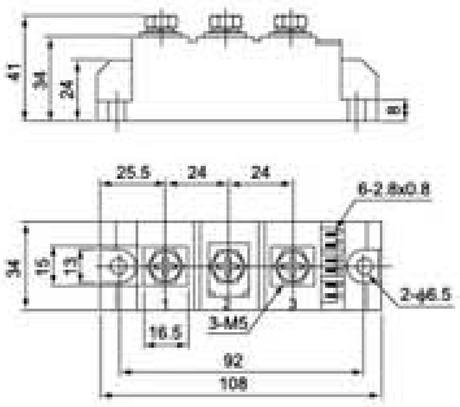
101B 25~130A



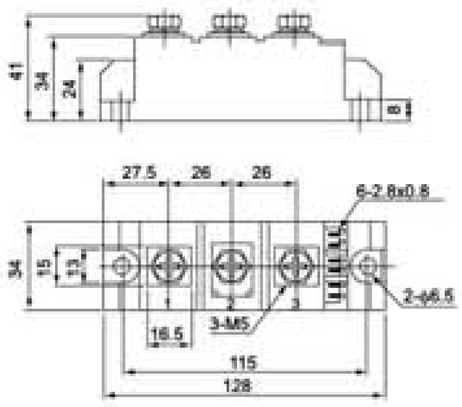
102B 70~160A



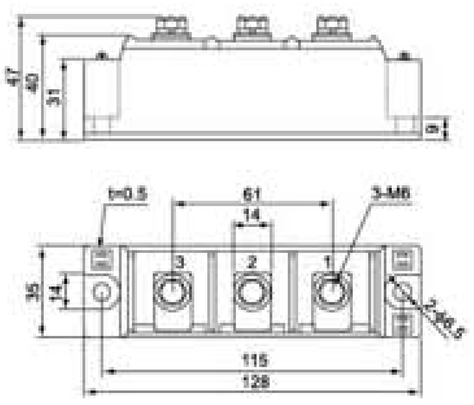
103B 70~130A



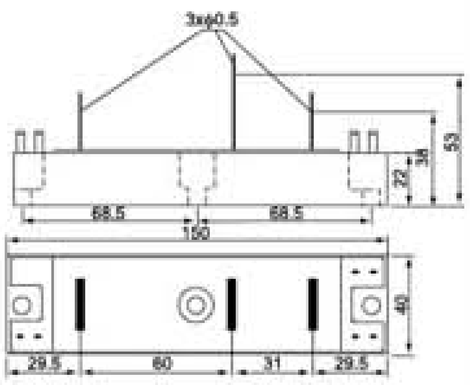
104B 200~300A



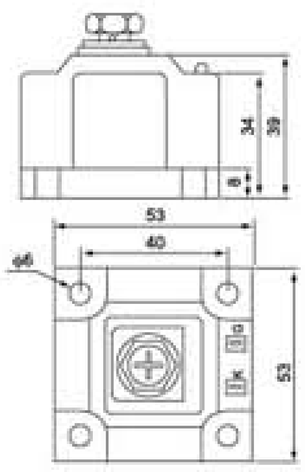
104B-1 160~200A



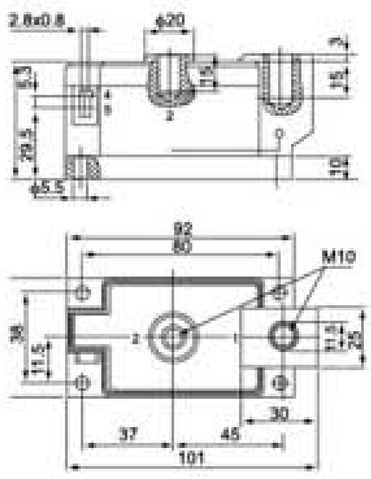
105B 130~200A



100B 200~300A

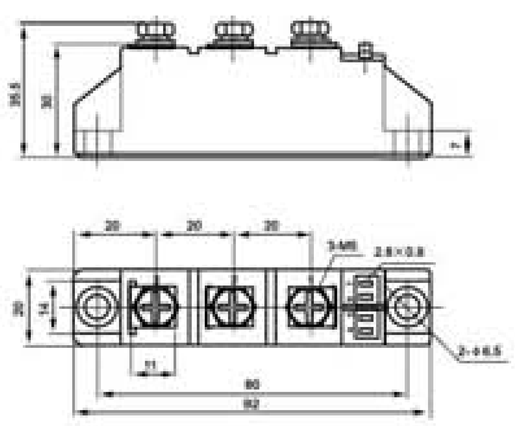


106B 300~500A

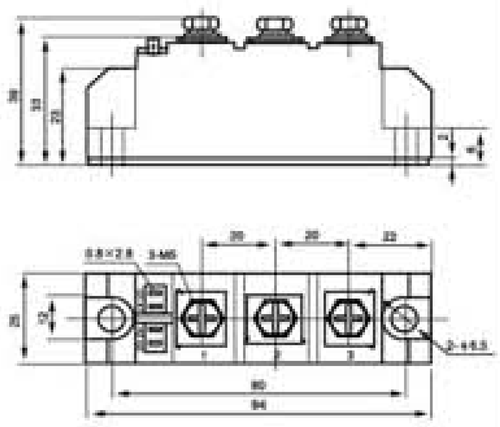


模块外形尺寸 Module Dimensions

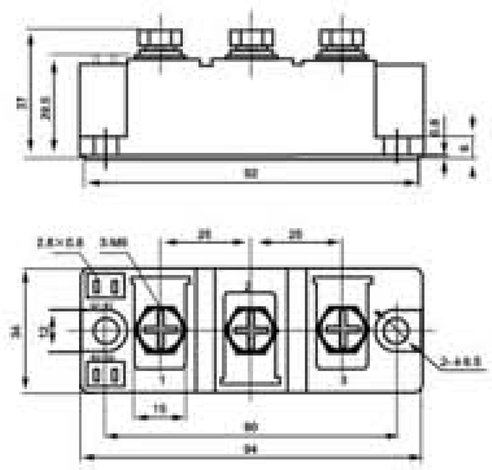
101F 25~55A



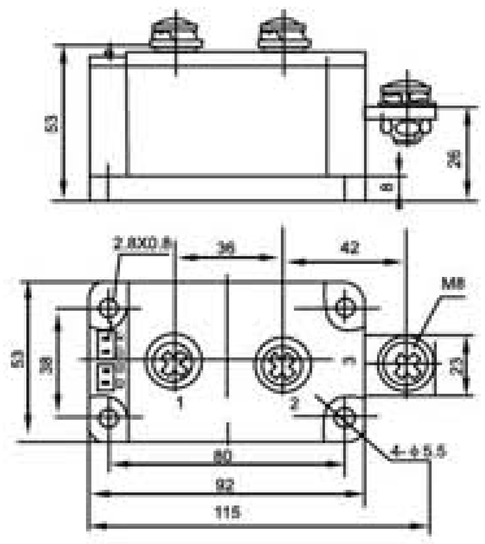
201F 55~110A



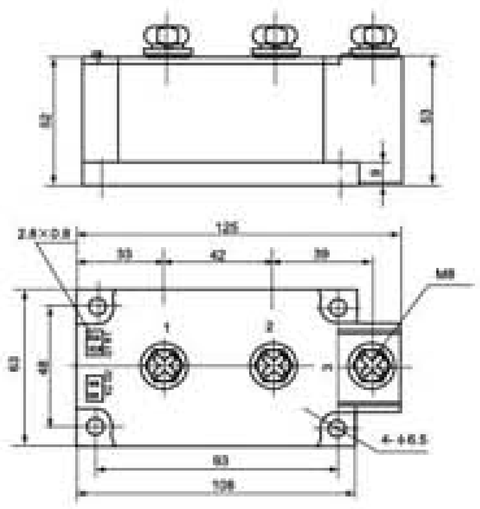
301F 130~200A



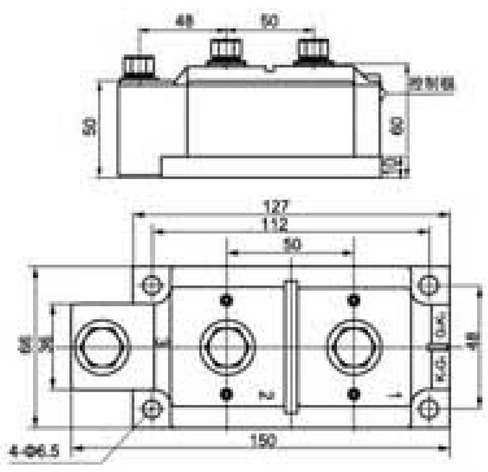
401F 200~350A



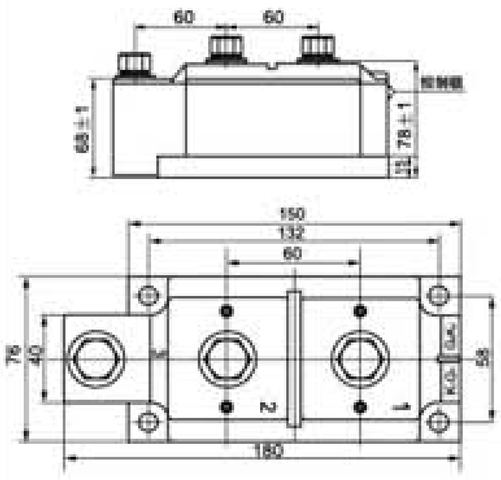
501F 400~500A



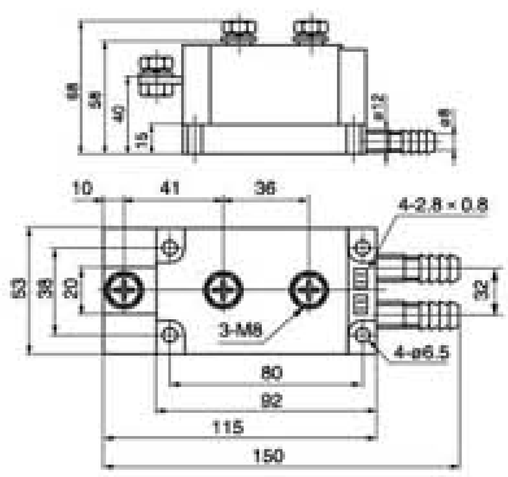
601F 600~800A



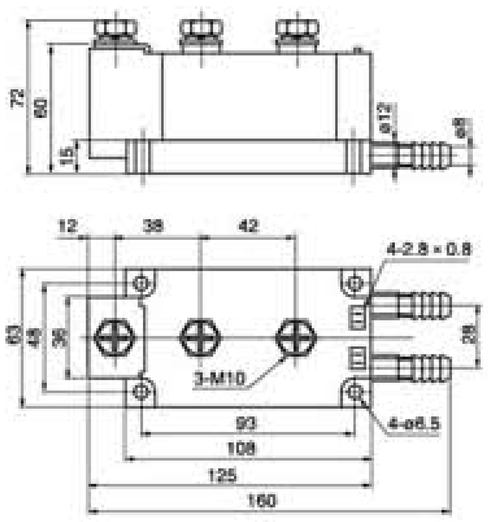
701F 800~1000A



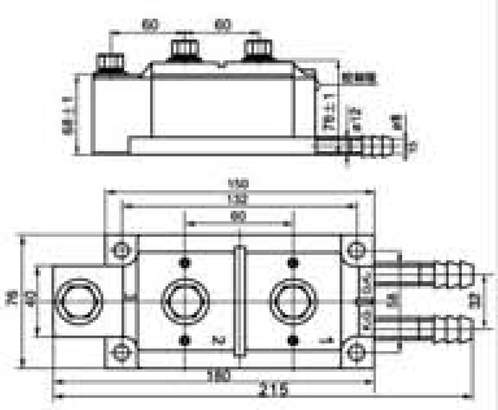
801F 200~350A



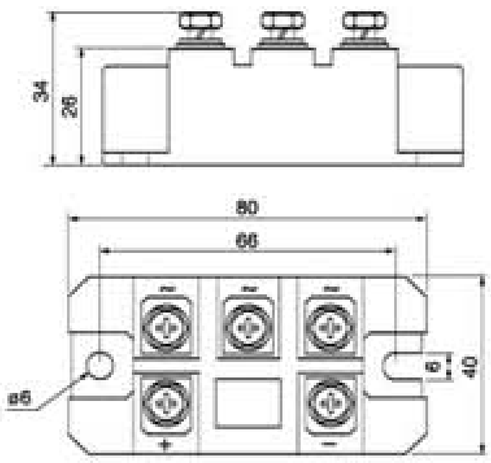
901F 400~500A



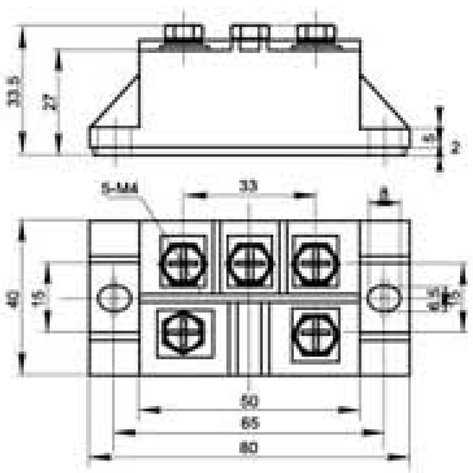
111F 600~1000A



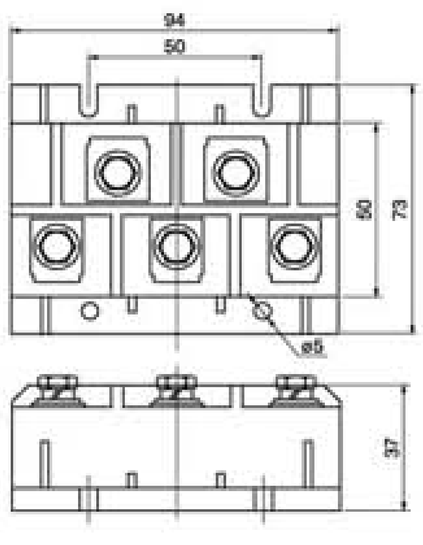
102A-1 30~100A



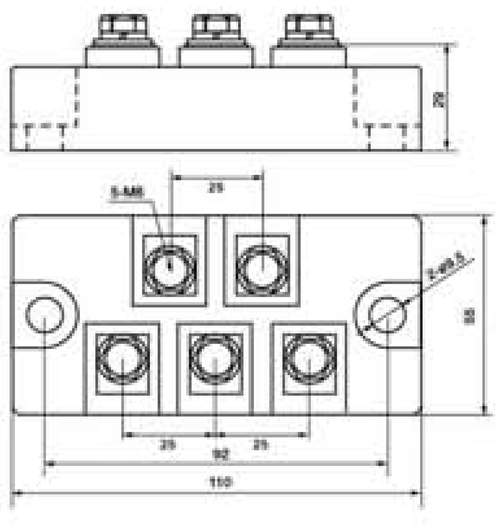
102A 30~100A



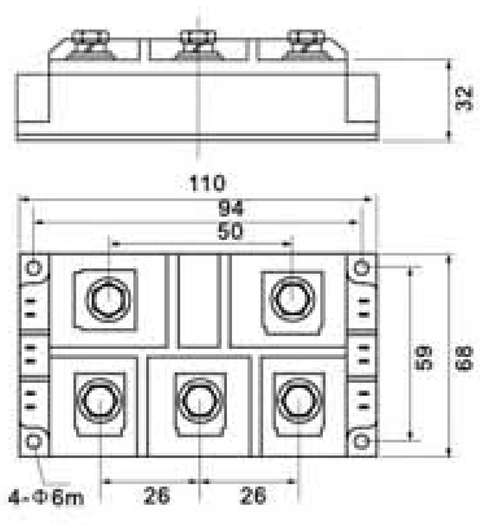
103A 150~200A



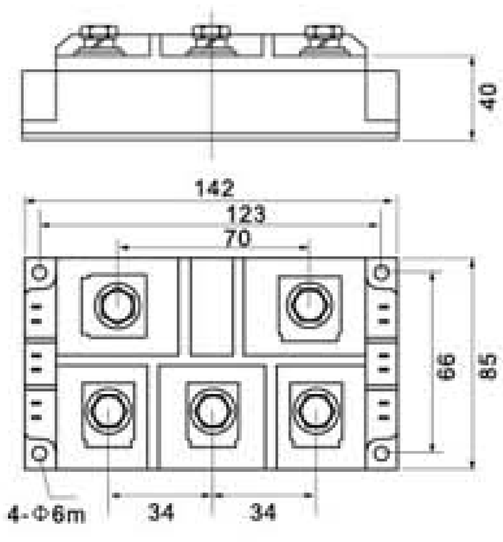
103A-1 150~200A



104A 200~400A



105A 450~1000A



<< 平板式半导体器件

원반 반도체 장치

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Russian Type Semiconductors (Capsule Version)

LiUjiNG Liujing Electronics

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国标型-普通整流管(平板式) Chinese Type Rectifier Diodes (Capsule Version)

特征

- 扩散结
- 全封闭陶瓷-金属平板型结构
- 承受高浪涌电流能力
- 符合GB4939-1985
- 双面冷却

典型应用

- 大功率变流器
- 焊接设备
- 电机控制和驱动
- 充电设备 ■ 电镀
- 工业和牵引用了大功率传动装置

型号 Type	反向重复峰值电压 V_{RRM}	正向平均电流 $I_{F(AV)}$ T_{HS} 55℃	反向重复峰值漏电流 I_{RRM}	正向平均电压/输出电流 V_{FM}/I_{FM} 25℃	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
	V	A	mA	V/A	℃/W	℃	KN		
ZP200A	200~3000	200	≤20	1.8/600	0.90	150	3.3~5.5	F2E1	SF12 SS11
ZP300A	200~3000	300	≤20	1.8/600	0.065	150	5.3~10	F3E2	SF13 SS11
ZP400A	200~3000	400	≤20	1.8/1200	0.040	150	10~20	F3E2	SF14 SS12
ZP500A	200~5000	500	≤20	1.8/1500	0.040	150	10~20	F4E5	SF15 SS12
ZP600A	200~5000	600	≤20	1.8/1800	0.033	150	10~20	F4E5	SF15 SS12
ZP800A	200~5000	800	≤20	2.2/2400	0.022	150	19~26	F5E6	SF15 SS13
ZP1000A	200~5000	1000	≤30	2.0/3000	0.022	150	19~26	F6E7	SF16 SS13
ZP1200A	200~5000	1200	≤30	2.2/3000	0.020	150	21~30	E8	SF16 SS13
ZP1500A	200~5000	1500	≤30	2.0/3000	0.020	150	21~30	E8/E9	SF17 SS14
ZP1800A	200~5000	1800	≤45	2.1/3500	0.018	150	30~38	E9	SF17 SS14
ZP2000A	200~5000	2000	≤50	2.2/4000	0.016	150	30~40	E9	SF17 SS14
ZP2500A	200~5000	2500	≤50	2.2/5000	0.011	150	35~47	E10E10-1	SF18 SS14
ZP3000A	200~5000	3000	≤50	2.0/5000	0.016	150	30~40	E10E10-1	SF18 SS14
ZP3500A	200~5000	3500	≤80	2.0/5000	0.011	150	35~47	E10E10-1	SF18 SS15
ZP4000A	200~5000	4000	≤80	2.0/5000	0.009	150	70~95	E11E11-1	SF18 SS15
ZP5000A	200~5000	5000	≤80	1.25/5000	0.0135	170	19~26	E11-E11-1E12	SF18 SS15
ZP6000A	200~5000	6000	≤80	1.125/6000	0.0175	180	19~30	E11/E13	SF18 SS15

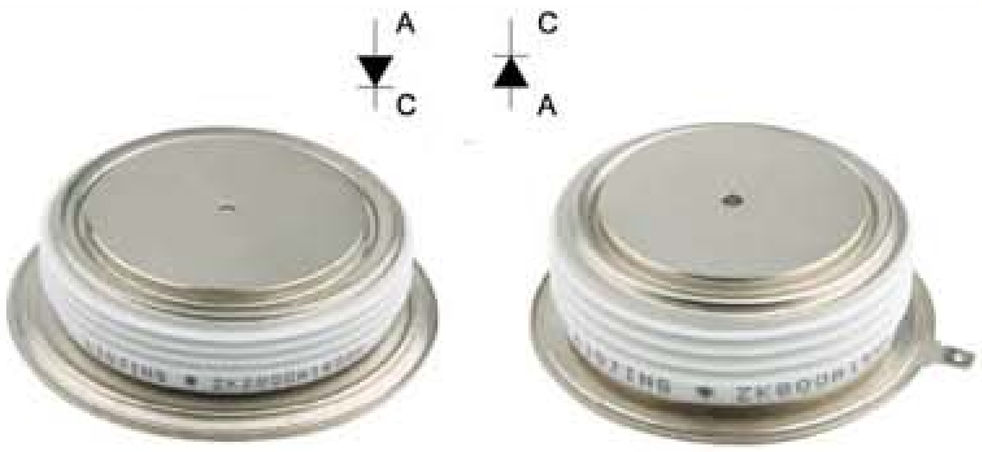
国标型-快速整流管(平板式) Chinese Type Fast Recovery Rectifier Diodes (Capsule Version)

特征

- 扩散结
- 全封闭陶瓷-金属平板型结构
- 承受高浪涌电流能力
- 符合GB4939-1985
- 双面冷却
- 在关断状态下的高通态电流临界上长能力

典型应用

- 电机控制和驱动
- 感应加热
- UPS电源
- 焊接设备
- 不间断电流
- 逆变器
- AC机电控制



型号 Type	反向重复峰值电压 V_{RRM}	正向平均电流 $I_{F(AV)}$ T_{HS} 55℃	反向恢复电荷 Q_{rr}	一周波正向不重复浪涌电流 I_{FSM} 10ms	反向恢复时间 t_{rr} 100℃	反向重复峰值漏电流 I_{RRM}	正向平均电压/输出电流 V_{FM}/I_{FM} 25℃	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
	V	A	μc	KA	μs	mA	V/A	mA	℃	KN		
ZK200A	200~3000	200	70	2.7	2	16	2.2/600	0.090	150	3.3~5.5	E1	SF12 SS11
ZK300A	200~3000	300	100	4.1	3	30	2.4/900	0.065	150	5.3~10	E1	SF13 SS12
ZK400A	200~3000	400	100	5.4	3	40	2.4/1200	0.040	150	10~20	E2	SF14 SS12
ZK500A	200~3000	500	120	8	3	40	2.4/1800	0.033	150	10~20	E2	SF15 SS12
ZK600A	200~3000	600	125	9	3	40	2.5/2400	0.033	150	10~20	E5-1E6	SF16 SS13
ZK800A	200~3000	800	130	10	3	40	2.6/2400	0.033	150	10~20	E5-1E6	SF16 SS13
ZK1000A	200~3000	1000	150	13	3	50	2.6/3000	0.030	150	15~20	E6E7	SF16 SS13
ZK1200A	200~3000	1200	160	14	3	50	2.8/2500	0.030	150	15~20	E8	SF16 SS13
ZK1500A	200~3000	1500	170	15	3	50	3.0/3000	0.030	150	20~30	E8/E9	SF17 SS14
ZK2000A	200~3000	2000	180	16	3	50	3.0/3000	0.030	150	20~30	E9	SF17 SS14
ZK2500A	200~3000	2500	190	17	3	50	3.0/3000	0.030	150	20~30	E10E10-1	SF17 SS14
ZK3000A	200~3000	3000	200	18	5	60	4.0/5000	0.030	150	30~40	E10E10-1	SF17 SS14

国标型-普通晶闸管(平板式) Chinese Type Phase Control Thyristors (CapsuleVersion)

特征

- 全扩散工艺
- 平板型陶瓷管壳封装
- 中心放大门极结构
- 双面冷却
- 大电流

典型应用

- 大功率变流器
- 交直流电机控制
- 交直流开关
- 相控整流
- 有源和无源逆变

说明

- $I_{GT}V_{GT}I_H$为25℃测试值，除非另作说明，参数表中其它参数皆为在T_{jm}下的测试值。
- $I^2t=I^2_{TSM}\times t_w/2$；$t_w$=正弦半波电流底宽。在50Hz下，$I^2t=0.005I^2_{TSM}(A^2s)$
- 当使用在电流为60Hz情况下：
  $I_{TSM}(8.3ms)=I_{TSM}(10ms)\times 1.066$，$T_j=T_{jm}$
  $I^2t(8.3ms)=I^2t(10ms)\times 0.943$，$T_j=T_{jm}$
- V_{TO}:门槛电压，r_T斜率电阻
- 门极引线: 白色或无色;
  阴极引线(需要时): 红色

型号 Type	正反向重复峰值电压 V_{DRM} V_{RRM}	通态平均电流 $I_{T(AV)}$	一周波通态不重复浪涌电流 I_{TSM}	断态电压临界上升率 dv/d_t	通态电流临界上升率 d_i/d_t	正反向重复峰值电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压 V_{TM}/I_{TM}	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
		T_{HS} 55℃	10ms				25℃								
	V	A	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN		
KP200A	200~3000	200	2.5	≥500	100	≤20	35~250	0.8~2.0	20~150	2.4/600	0.065	125	5.3~10	F2E1E3	SF12 SS11
KP300A	200~3000	300	3.8	≥500	100	≤20	35~250	0.8~2.5	20~200	2.2/900	0.055	125	5.3~10	F3E2E4	SF13 SS12
KP400A	200~3000	400	5	≥500	100	≤20	35~250	0.8~2.5	20~200	2.4/1200	0.040	125	10~20	F3E2E4	SF14 SS12
KP500A	200~5000	500	6.4	≥500	100	≤20	35~250	0.8~2.5	20~250	2.4/1500	0.035	125	15~20	F4E5E4	SF15 SS12
KP600A	200~5000	600	6.4	≥500	100	≤20	35~300	0.8~2.5	20~250	1.8/1800	0.035	125	10~20	F5E6E5	SF15 SS12
KP800A	200~5000	800	10	≥800	150	≤30	40~300	0.8~3.0	20~250	2.2/2400	0.032	125	15~20	F5E6	SF15 SS13
KP1000A	200~5000	1000	13	≥800	200	≤30	40~300	0.8~3.0	20~300	2.4/3000	0.022	125	21~30	F6E7	SF15 SS13
KP1200A	200~5000	1200	15	≥800	200	≤30	40~300	0.8~3.0	20~300	2.4/3000	0.020	125	21~30	E8	SF16 SS13
KP1500A	200~5000	1500	20	≥800	200	≤50	40~300	0.8~3.0	20~300	2.4/3000	0.017	125	27~34	E8E9	SF17 SS14
KP1800A	200~5000	1800	22.5	≥800	250	≤50	40~300	0.8~3.0	20~300	2.4/4000	0.016	125	30~40	E10-1E10	SF17 SS14
KP2000A	200~5000	2000	25	≥800	250	≤50	40~300	0.8~3.0	20~300	2.4/4000	0.011	125	35~47	E10-1E10	SF18 SS14
KP2500A	200~5000	2500	31	≥800	250	≤80	40~300	0.8~3.0	20~300	2.4/5000	0.011	125	35~47	E10-1E10	SF18 SS14
KP3000A	200~5000	3000	38	≥800	250	≤80	40~300	0.8~3.0	20~300	2.2/5000	0.011	125	35~47	E11-1E11	SF18 SS15
KP4000A	200~5000	4000	42	≥800	250	≤80	40~300	0.8~3.0	20~300	2.4/5000	0.010	125	70~85	E11-1E11E12	SF18 SS15
KP5000A	200~5000	5000	44	≥800	250	≤80	40~300	0.8~3.0	20~300	2.4/5000	0.010	125	70~85	E11-1E11E12	SF18 SS15

国标型-双向晶闸管(平板式) Chinese Type Triac Thyristors (Capsule Version)

特征

- 全扩散工艺
- 中心门极
- 平板型陶瓷管壳封装
- 双面冷却
- 等效二只普通晶闸管反并联
- 通过适当的门极电流，正反向均可导通

典型应用

- 无触点交流开关
- 交流功率的调节和控制
- 快速马达控制
- 温度控制
- 交流开关

型号 Type	正反向重复峰值电压 V_{DRM} V_{RRM}	通态电流有效值 $I_{T(RMS)}$	一周波通态不重复浪涌电流 I_{TSM}	断态电压临界上升率 dv/d_t	通态电流临界上升率 d_i/d_t	正反向重复峰值电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压 V_{TM}/I_{TM}	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
		T_{HS} 55℃	10ms				25℃								
	V	A	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN		
KS100A	200~2000	100	1.7	500	50	20	20~200	≤2.5	20~200	2.4/300	0.120	125	3.3~5.5	F2E1	SF12 SS11
KS200A	200~2000	200	1.7	500	50	20	20~200	≤2.5	20~200	2.4/300	0.120	125	3.3~5.5	F2E1	SF12 SS11
KS300A	200~2000	300	2.5	500	50	30	20~200	≤2.5	20~200	2.4/500	0.065	125	5.3~10	F3E2E4	SF12 SS11
KS400A	200~2000	400	3	500	50	40	20~300	≤2.5	20~300	2.4/600	0.050	125	5.3~10	F3F4E5E4	SF14 SS11
KS500A	200~2000	500	4	500	50	40	20~300	≤2.5	20~300	2.4/700	0.040	125	10~20	F3F4E5E4	SF14 SS11
KS600A	200~2000	600	4.2	500	50	40	20~300	≤2.5	20~300	2.4/900	0.035	125	10~20	F4E5	SF14 SS12
KS800A	200~2000	800	6.8	500	50	50	20~350	≤2.5	20~400	2.4/1200	0.035	125	15~20	F5E6	SF14 SF12
KS1000A	200~2000	1000	6.8	500	50	50	20~350	≤2.5	20~400	2.4/1500	0.035	125	20~30	F6E6	SF15 SS13

LiUjiNG Liujing Electronics

CE PICC CQC ISO9001:2000 RoHS

国标型-快速晶闸管(平板式) Chinese Type Fast Thyristors (Capsule Version)

特点

- 全扩散工艺
- 分布式放大门极结构
- 优良的动态特性
- 快速开关性能
- 低开关损耗
- 平板型陶瓷管壳封装
- 双面冷却

典型应用

- 逆变器
- 斩波器
- 感应加热
- 各种类型的强迫换流器
- 中频电源
- 中频炉

型号 Type	正反向重复峰值电压 V_{DRM} V_{RRM}	通态平均电流 $I_{T(AV)}$	关断时间 t_q	断态电压临界上升率 dv/dt	通态电流临界上升率 di/dt	正反向重复峰值电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压/电流 V_{TM}/I_{TM}	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
		T_{HS} 55℃	100℃				25℃								
	V	A	μs	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN		
KK200A	600~2500	200	16~35	500	200	30	40~250	0.9~2.5	20~400	2.9/600	0.065	115	5.3~10	F2E1E3	SS11
KK300A	600~2500	300	16~35	500	200	30	40~250	0.9~2.5	20~400	2.8/900	0.055	115	5.3~10	F3E2E4	SS12
KK400A	600~2500	400	16~35	500	300	40	40~250	0.9~2.5	20~400	2.8/1200	0.040	115	10~20	F4E5	SS12
KK500A	600~2500	500	16~35	500	300	50	40~250	0.9~2.5	20~400	3.15/1500	0.035	115	15~20	F4E5	SS12
KK600A	600~2500	600	16~35	500	300	50	40~300	0.9~3.0	20~400	3.15/1800	0.032	115	15~20	F5E6	SS12
KK800A	600~2500	800	16~35	500	300	60	40~300	0.9~3.0	20~500	3.15/2400	0.030	115	18~25	E6	SS13
KK1000A	600~2500	1000	16~35	500	500	80	40~300	0.9~3.0	20~500	3.15/3000	0.024	115	19~26	E7	SS13
KK1200A	600~2500	1200	16~35	500	500	100	40~300	0.9~3.0	20~500	3.15/3000	0.022	115	21~30	E8	SS14
KK1500A	600~2500	1500	16~35	500	500	120	40~300	0.9~3.5	20~500	3.15/3000	0.020	115	21~30	E8E9	SS14
KK1800A	600~2500	1800	16~35	500	500	120	40~400	0.9~4.0	20~800	3.15/4000	0.017	115	27~34	E10E10-1	SS14
KK2000A	600~2500	2000	40~80	500	600	160	40~450	0.9~4.5	20~1000	3.15/4000	0.016	115	30~40	E10E10-1	SS14
KK2500A	600~2500	2500	40~80	500	600	200	40~450	0.9~4.5	20~1000	3.15/5000	0.011	115	35~47	E11E11-1	SS15
KK3000A	600~2500	3000	40~80	500	600	250	40~450	0.9~4.5	20~1000	3.15/5000	0.009	115	70~85	E11E11-1	SS15
KK3500A	600~2500	3500	40~80	500	600	300	40~450	0.9~4.5	20~1000	3.15/6000	0.007	115	95~105	E11E11-1	SS15
KK4000A	600~2500	4000	40~80	500	600	350	40~450	0.9~4.5	20~1000	3.15/6000	0.005	115	110~130	E11E11-1	SS15

国标型-高频晶闸管(平板式) Chinese Type High Frequency Thyristors (Capsule Version)

特点

- 全扩散工艺
- 分布式扩展放大门极结构
- 开关损耗低
- 优良的高频性能，适用频率2.5KHz-10KHz
- 优良的动态特性
- 双面冷却

典型应用

- 逆变器
- 电焊机
- 斩波器
- 感应加器
- 各种类型的强迫换流器

型号 Type	正反向重复峰值电压 V_{DRM} V_{RRM}	通态平均电流 $I_{T(AV)}$	关断时间 t_q	一周波通态不重复浪涌电流 I_{TSM}	断态电压临界上升率 dv/dt	通态电流临界上升率 di/dt	正反向重复峰值漏电流 I_{DRM} I_{RRM}	触发电流 I_{GT}	触发电压 V_{GT}	维持电流 I_H	通态峰值电压/电流 V_{TM}/I_{TM}	热阻抗 $R_{TH(j-hs)}$	最高额定结温 T_{jm}	安装力 M^2	外型 Outline	推荐散热器 Heatsink
		T_{HS} 55℃	100℃	10ms				25℃								
	V	A	μs	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN		
KA(G)200A	800~1600	200	10~16	2.4	200	200	30	30~200	0.8~2.5	20~250	3.2/600	0.055	115	5.3~10	E1	SS11
KA(G)300A	800~1600	300	10~16	3.6	200	200	40	30~250	0.8~3.0	20~400	3.2/900	0.035	115	10~20	E2E4	SS12
KA(G)400A	800~1600	400	10~16	4.8	200	200	40	30~250	0.8~3.0	20~400	3.2/1200	0.035	115	10~20	E5E5-1	SS12
KA(G)500A	800~1600	500	10~16	6	200	200	50	30~250	0.8~3.0	20~400	3.2/1500	0.032	115	15~20	E5E5-1	SS12
KA(G)600A	800~1600	600	12~18	7.2	200	250	60	30~250	0.8~3.0	20~400	3.2/1800	0.030	115	18~25	E6	SS13
KA(G)800A	800~1600	800	12~18	9.6	200	250	80	30~250	0.8~3.0	20~400	3.2/2400	0.024	115	19~25	E6	SS13
KA(G)1000A	800~1600	1000	12~18	12	200	250	100	30~300	0.8~3.0	20~400	3.2/3000	0.022	115	21~30	E7	SS13
KA(G)1200A	800~1600	1200	12~18	14	200	250	100	30~300	0.8~3.0	20~400	3.2/3000	0.022	115	21~30	E8	SS14
KA(G)1500A	800~1600	1500	12~18	16	200	250	100	30~300	0.8~3.0	20~400	3.2/3000	0.022	115	21~30	E9	SS14
KA(G)2000A	800~1600	2000	12~18	18	200	250	100	30~300	0.8~3.0	20~400	3.2/3000	0.022	115	21~30	E10-1	SS14

功率半导体配件 Power Semiconductor Accessories

国标平板配件 Chinese Capsule Accessories

俄罗斯型平板配件 Russia Capsule Accessories

国际标准平板配件 International Capsule Accessories

螺旋式底座 Stud Version Base

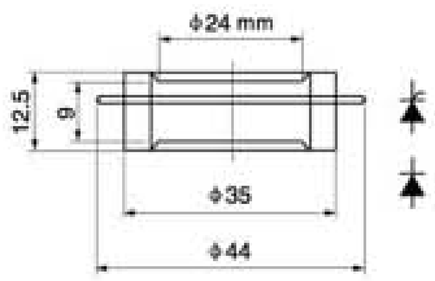
金属珐琅管帽 Metal-glass cap

陶瓷管帽(IR型) Ceramic cap (IR type)

陶瓷管帽(俄罗斯型) Ceramic cap (Russia type)

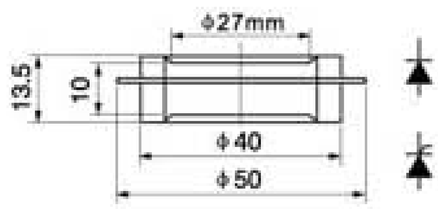
国标型-平板式外壳尺寸图 Chinese Type Capsule outline

凹型 F1



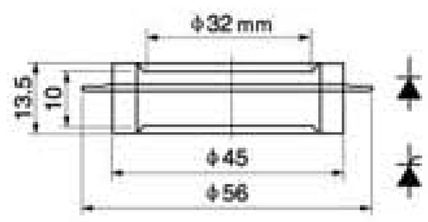
外壳型号	安装压力
KA26	5~10KW

凹型 F2



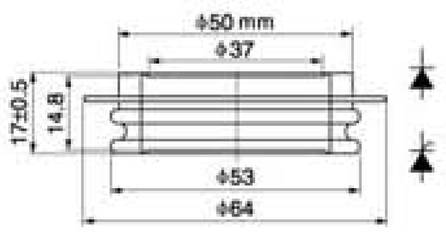
外壳型号	安装压力
KA30	10~15KW

凹型 F3



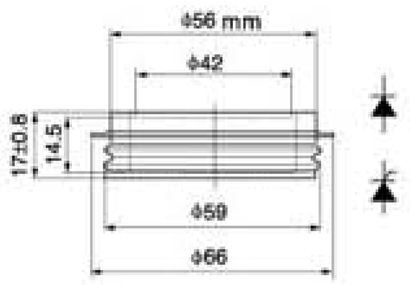
外壳型号	安装压力
KA36	5~10KW

凹型 F4



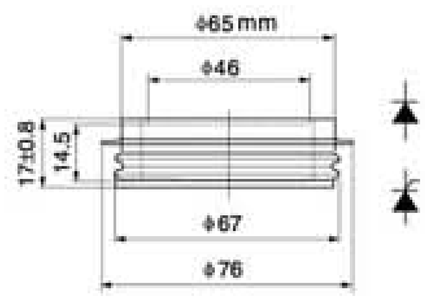
外壳型号	安装压力
KA40	15~20KW

凹型 F5



外壳型号	安装压力
KA45	20~25KW

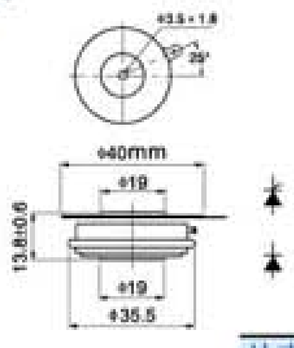
凹型 F6



外壳型号	安装压力
KA50	25~30KW

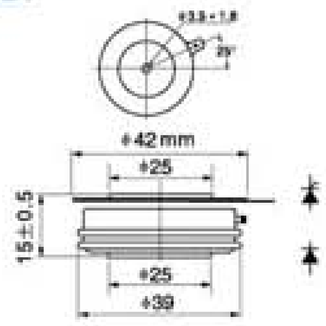
国标型-平板式外壳尺寸图 Chinese Type Capsule outline

半凸型 E01



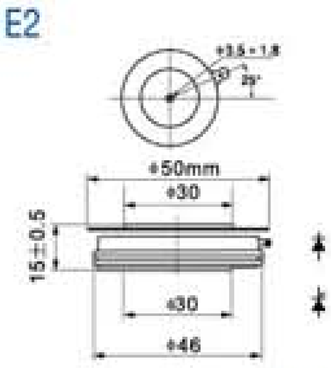
外壳型号	安装压力
KT26AT	3.3~5.5KW

半凸型 E1



外壳型号	安装压力
KT30AT	8~10KW

半凸型 E2

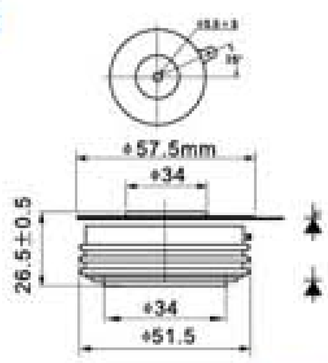


外壳型号	安装压力
KT36AT	12~15KW

半凸型 E3

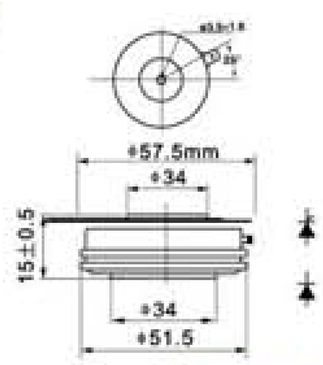
外壳型号	安装压力
KT36CT	12~15KW

凸型 E4



外壳型号	安装压力
KT40CT	15~20KW

半凸型 E4-1

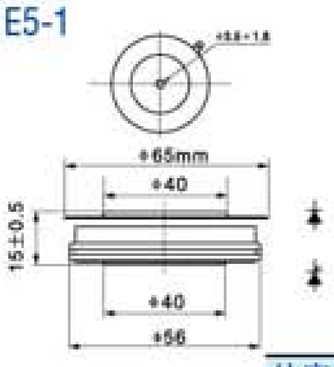


外壳型号	安装压力
KT40AT	15~20KW

凸型 E5

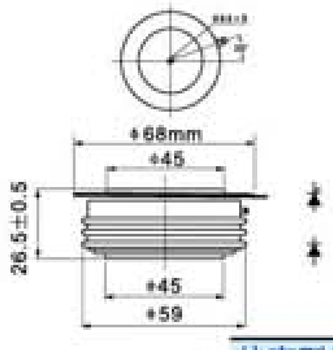
外壳型号	安装压力
KT45CT	15~20KW

半凸型 E5-1



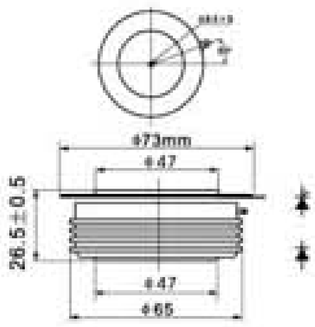
外壳型号	安装压力
KT45AT	15~20KW

凸型 E6



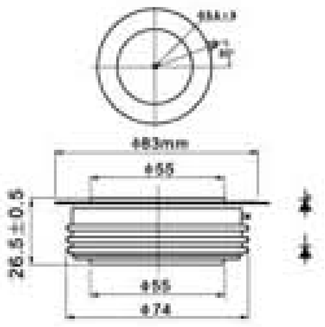
外壳型号	安装压力
KT50CT	20~25KW

凸型 E7



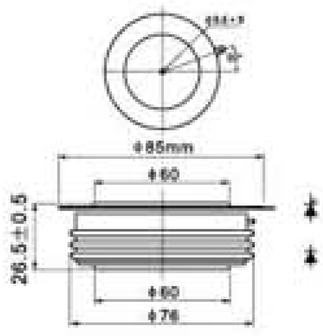
外壳型号	安装压力
KT55CT	20~25KW

凸型 E8



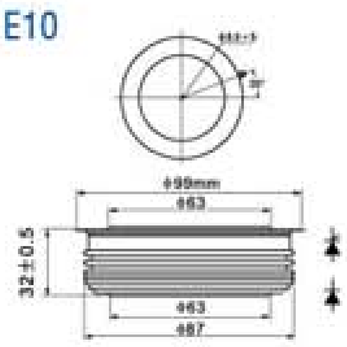
外壳型号	安装压力
KT60CT	25~30KW

凸型 E9



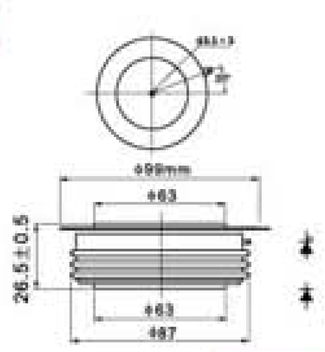
外壳型号	安装压力
KT65CT	25~30KW

超凸型 E10



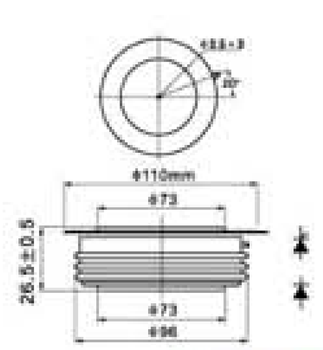
外壳型号	安装压力
KT70DT	30~35KW

凹型 E10-1



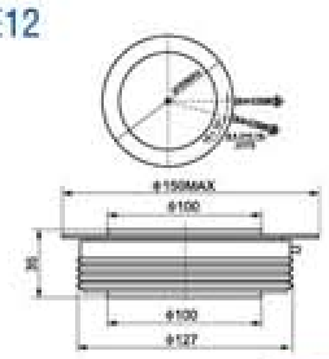
外壳型号	安装压力
KT70CT	30~35KW

凸型 E11



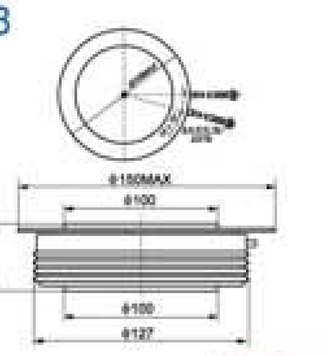
外壳型号	安装压力
KT80CT	35~40KW

超凸型 E12



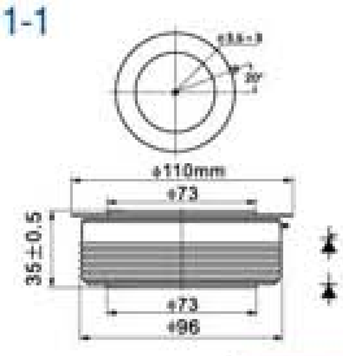
外壳型号	安装压力
KT90DT	35~40KW

超凸型 E13



外壳型号	安装压力
KT100DT	40~50KW

超凸型 E11-1



外壳型号	安装压力
KT80DT	35~40KW

出口型-普通整流二极管(平板式) Export Type Rectifier Diodes (Capsule Version)

Features

- All diffuse techinics
- Ceramic disc type seal
- Bifacial cooled

Typical Applications

- Big power transformer
- Welder
- Charger
- Motor control

Ordering information Table

Device Code SD 300 C 16 C
① ② ③ ④ ⑤

1 -SD=Standard recovery diode ZK=Fast recovery diode
ZE=Welder class diode
2 -Current code=$IF_{(AV)}$
3 -C=capsule version
4 -Voltage code=code x 100=V_{RRM}
5 -C=capsule case (A-puk) & (E-puk) L=capsule case (B-puk)
K=capsule case (K-puk) R=capsule case (R-puk)

Notice:For other different outline, pls contact LIUJING.

Type	V_{RRM}	$IF_{(AV)}$ T_{HS}55℃	I_{RRM}	V_{FM}/I_{FM} 25℃	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
	V	A	mA	V/A	℃/W	℃	KN	
SD200C	200-3000	200	16	1.8/600	0.090	150	3.3-5.5	E1/E2
SD300C	200-3000	300	30	1.8/900	0.065	150	5.3-10	E1/E2
SD400C	200-3000	400	40	1.8/1200	0.040	150	10-20	E1/E2
SD500C	200-5000	500	40	1.8/1500	0.040	150	10-20	E2/E3/E5
SD600C	200-5000	600	40	1.8/1800	0.033	150	10-20	E3/E5
SD800C	200-5000	800	80	2.2/2400	0.022	150	19-26	E5/E6
SD1000C	200-5000	1000	80	2.0/3000	0.022	150	19-26	E5/E6/E8
SD1200C	200-5000	1200	120	2.2/3000	0.020	150	21-30	E8
SD1500C	200-5000	1500	120	2.0/3000	0.020	150	21-30	E8/E9
SD2000C	200-5000	2000	160	2.2/4000	0.016	150	30-40	E11/E12/E13
SD2500C	200-5000	2500	200	2.2/5000	0.011	150	35-47	E11/E12/E13
SD3000C	200-5000	3000	160	2.0/5000	0.016	150	30-40	E11/E12/E13
SD3500C	200-5000	3500	200	2.0/5000	0.011	150	35-47	E14/E15
SD4000C	200-5000	4000	200	2.0/5000	0.009	150	70-85	E14/E15
SD5000C	200-5000	5000	200	2.5/5000	0.0135	170	70-85	E14/E15
SD6000C	200-5000	6000	200	2.5/5000	0.0150	190	70-85	E14/E15

出口型-快恢复二极管(平板式) Export Type Fast Recovery Rectifier Diodes (Capsule Version)

Features

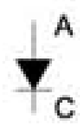
- All diffuse techinics
- Short recovery time
- Very small anti recovery charge
- Fast soft recovery features
- Ceramic disc type seal
- Bifacial cooled

Typical Applications

- Motor control
- Induction warm-up
- UPS power
- Charger
- Welder

Explanation

- $I^2t=I^2_{FSM} \times t_W/2$:$t_W$ =Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{FSM}$ $(A^2S)_{FSM}$
- When at 60Hz,$I_{FSM}(8.3ms)=I_{FSM}(10ms) \times 1.066$,$T_j=T_{jm}$
- $I^2t(8.3ms)=I^2t(10ms) \times 0.943$,$T_j=T_{jm}$



Type	V_{RRM}	$IF_{(AV)}$ T_{HS}55℃	t_{rr} 100℃	Q_{rr}	I_{FSM} 10ms	I_{RRM}	V_{FM}/I_{FM} 25℃	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
	V	A	μs	μc	kA	mA	V/A	℃/W	℃	KN	
ZK200C	200-3000	200	2	70	2.7	16	2.2/600	0.090	150	3.3-5.5	E1/E2
ZK300C	200-3000	300	3	100	4.1	30	2.4/900	0.065	150	5.3-10	E2
ZK400C	200-3000	400	3	100	5.4	40	2.4/1200	0.040	150	10-20	E2/E3/E5
ZK500C	200-3000	500	3	120	8	40	2.4/1800	0.033	150	10-20	E2/E3/E5
ZK800C	200-3000	800	3	130	10	40	2.6/2400	0.033	150	10-20	E5/E6/E8
ZK1000C	200-3000	1000	4	150	13	50	2.6/3000	0.030	150	15-20	E5/E6/E8
ZK1500C	200-3000	1500	4	170	15	50	2.6/3200	0.030	150	15-20	E9
ZK2000C	200-3000	2000	4	190	17	50	2.6/3400	0.028	150	15-20	E9 E11
ZK2500C	200-3000	2500	4	210	19	50	2.8/3600	0.026	150	15-20	E11 E12
ZK3000C	200-3000	3000	4	230	21	50	2.8/4000	0.024	150	15-20	E11 E12 E13

出口型-普通可控硅(平板式) Export Type Phase Control Thyristors (Capsule Version)

Features

- All diffuse techinics
- Ceramic disc type seal
- Middle trigger
- Bifacial cooled
- High current

Typical Applications

- Big power transformer
- AC & DC motor control
- AC & DC switch
- Phase control rectification
- Inverter

Ordering information Table

Device Code ST 800 C 16 L
① ② ③ ④ ⑤

1 -ST=Standard thyristor
SST=Triac thyristor
KST=Fast thyristor
KE=Welder thyristor
GST=High frequency thyristor

2 -Current code=$IT_{(AV)}$

3 -C=capsule version

4 -Voltage code=code x 100=V_{RRM}

5 -C=capsule case (A-puk) &(E-puk) L=capsule case (B-puk)
K=capsule case (K-puk) R=capsule case (R-puk)

Notice:For other different outline, pls contact LIUJING

Explanation

- I_{GT},V_{GT},I_H are all T_A=25℃ test data, others are all T_A=T_{jm} test data.
- I^2t=I^2_{TSM} × t_W/2:t_W=Half sine wave current,when at 50Hz, I^2t=0.005I^2_{TSM}(A^2S)
- When at 60Hz, I_{TSM}(8.3ms)=I_{TSM}(10ms) × 1.066,T_j=T_{jm}
- I^2t(8.3ms)=I^2t(10ms) × 0.943,T_j=T_{jm}

Type	V_{DRM} V_{RRM}	$I_{T(AV)}$ T_{HS}55℃	I_{TSM} 10ms	d_v/d_t	d_i/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
							25℃							
	V	A	kA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN	
ST200C	200~3000	200	2.5	300	100	30	35-250	0.8-2.0	20-150	2.4/600	0.065	125	5.3-10	E1/E2
ST300C	200~3000	300	3.8	300	100	30	35-250	0.8-2.5	20-200	2.2/900	0.055	125	5.3-10	E1/E2
ST400C	200~3000	400	5	300	100	40	35-250	0.8-2.5	20-200	2.4/1200	0.040	125	10-20	E1/E2
ST500C	200~5000	500	6.4	300	100	50	35-250	0.8-2.5	20-250	2.4/1500	0.035	125	15-20	E2/E3/E5
ST600C	200~5000	600	6.4	300	100	40	35-300	0.8-2.5	20-250	1.8/1800	0.035	125	10-20	E2/E3/E5
ST800C	200~5000	800	10	300	100	50	40-300	0.8-3.0	20-250	2.2/2400	0.032	125	15-20	E5/E6
ST1000C	200~5000	1000	13	500	150	80	40-300	0.8-3.0	20-300	2.4/3000	0.022	125	21-30	E6/E8
ST1200C	200~5000	1200	15	500	200	120	40-300	0.8-3.0	20-300	2.4/3000	0.020	125	21-30	E8
ST1500C	200~5000	1500	20	500	200	120	40-300	0.8-3.0	20-300	2.4/3000	0.017	125	27-34	E8/E9
ST1800C	200~5000	1800	22.5	500	200	160	40-300	0.8-3.0	20-300	2.4/4000	0.016	125	30-40	E11/E12/E13
ST2000C	200~5000	2000	25	500	250	200	40-300	0.8-3.0	20-300	2.4/4000	0.011	125	35-47	E11/E12/E13
ST2500C	200~5000	2500	31	500	250	200	40-300	0.8-3.0	20-300	2.4/5000	0.011	125	35-47	E11/E12/E13
ST3000C	200~5000	3000	38	500	250	200	40-300	0.8-3.0	20-300	2.2/5000	0.011	125	35-47	E14/E15
ST3500C	200~5000	3500	44	500	250	250	40-300	0.8-3.0	20-300	2.4/5000	0.01	125	70-85	E14/E15
ST4000C	200~5000	4000	48	500	250	250	40-300	0.8-3.0	20-300	2.4/5000	0.01	125	70-85	E14/E15
ST4500C	200~5000	4500	54	500	250	250	40-300	0.8-3.0	20-300	2.35/5000	0.01	125	70-85	E15
ST5000C	200~5000	5000	60	500	250	250	40-300	0.8-3.0	20-300	2.4/5000	0.01	125	70-85	E15
ST6000C	200~5000	6000	66	500	250	250	40-300	0.8-3.0	20-300	2.4/6000	0.01	125	70-85	E15

出口型-双向可控硅(平板式) Export Type Triac Thyristors (Capsule Version)

Features

- All diffuse techinics
- Ceramic disc type seal
- Middle trigger
- Bifacial cooled
- Same as two thyristor anti-abreast
- Use proper trigger current, anti & forward all could ducting

Typical Applications

- AC switch
- Fast motor control

Explanation

- I_{GT},V_{GT},I_H are all T_A=25℃ test data, others are all T_A=Tjm test data.
- $I^2t=I^2_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{FSM}$ (A^2S)
- When at 60Hz, I_{TSM}(8.3ms)=I_{TSM}(10ms) × 1.066, $T_j=T_{jm}$
  I^2t(8.3ms)=I^2t(10ms) × 0.943,$T_j=T_{jm}$
- Gate trigger made (base point nt T_1)

T_1T_2 \ GK	I_{G+}	I_{G-}
+	I +	I -
-	III +	III -

I_{GT},V_{GT} just for I_+,I_-,III -3mode gate trigger, I_H data for two side all could use.

Type	V_{DRM} V_{RRM}	$IT_{(AV)}$	I_{TSM}	d_v/d_t	d_i/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
		T_{HS}55℃	10ms				25℃							
	V	A	kA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN	
SST200C	200-2000	200	1.7	50	50	20	20-200	0.8-2.5	20-200	2.4/300	0.120	125	3.3-5.5	E1/E2
SST300C	200-2000	300	2.5	50	50	30	20-200	0.8-2.5	20-200	2.4/500	0.065	125	5.3-10	E2
SST400C	200-2000	400	3	50	50	35	20-250	0.8-2.5	20-200	2.4/500	0.055	125	5.3-10	E2
SST500C	200-2000	500	4	50	50	40	20-300	0.8-3.0	20-300	2.4/700	0.040	125	10-20	E5
SST600C	200-2000	600	4.2	50	50	40	20-300	0.8-3.0	20-300	2.4/900	0.035	125	10-20	E5
SST800C	200-2000	800	6.8	50	50	50	20-350	0.8-3.5	20-400	2.4/1200	0.035	125	15-20	E5/E8
SST1000C	200-2000	800	6.8	50	50	50	20-350	0.8-3.5	20-400	2.4/1200	0.035	125	20-30	E8

出口型-快速可控硅(平板式) Export Type Fast Thyristors (Capsule Version)

Features

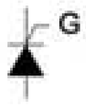
- All diffuse techinics
- Ceramic disc type seal
- Middle trigger
- Good dynamic feature
- Low switch loss
- Bifacial cooled
- Fast switch feature

Typical Applications

- Inverter
- Chopper
- Induction warm-up
- Current converter

Explanation

- I_{GT},V_{GT},I_H are all T_A=25℃ test data,others are all T_A=Tjm test data.
- $I^2t=I^2_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{TSM}$(A^2S)
- When at 60Hz,I_{TSM}(8.3ms)=I_{TSM}(10ms) × 1.066, I^2t(8.3ms)=I^2t(10ms) × 0.943,$T_j=T_{jm}$



Type	V_{DRM} V_{RRM}	$IT_{(AV)}$	t_q	d_v/d_t	d_i/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
		T_{HS}55℃	100℃				25℃							
	V	A	μs	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN	
KST200C	600-2500	200	16-35	500	200	30	40-250	0.9-2.5	20-400	2.9/600	0.065	115	5.3-10	E1/E2
KST300C	600-2500	300	16-35	500	200	30	40-250	0.9-2.5	20-400	2.8/900	0.055	115	5.3-10	E1/E2
KST400C	600-2500	400	16-35	500	300	40	40-250	0.9-2.5	20-400	2.8/1200	0.040	115	10-20	E2/E5
KST500C	600-2500	500	16-35	500	300	50	40-250	0.9-2.5	20-400	3.15/1500	0.035	115	15-20	E2/E3/E5
KST600C	600-2500	600	16-35	500	300	50	40-300	0.9-3.0	20-400	3.15/1800	0.032	115	15-20	E3/E5/E6
KST800C	600-2500	800	16-35	500	300	60	40-300	0.9-3.0	20-500	3.15/2400	0.030	115	18-25	E5/E6/E8
KST1000C	600-2500	1000	16-35	500	500	80	40-300	0.9-3.0	20-500	3.15/3000	0.024	115	19-26	E6/E8
KST1200C	600-2500	1200	16-35	500	500	100	40-300	0.9-3.0	20-500	3.15/3000	0.022	115	21-30	E8
KST1500C	600-2500	1500	16-35	500	500	120	40-300	0.9-3.5	20-500	3.15/3000	0.020	115	21-30	E8/E9
KST1800C	600-2500	1800	16-35	500	500	120	40-400	0.9-4.0	20-800	3.15/4000	0.017	115	27-34	E11/E12/13
KST2000C	600-2500	2000	40-80	500	600	160	40-450	0.9-4.5	20-1000	3.15/4000	0.016	115	30-40	E11/E12/13
KST2500C	600-2500	2500	40-80	500	600	200	40-450	0.9-4.5	20-1000	3.15/5000	0.011	115	35-47	E14/E15
KST3000C	600-2500	3000	40-80	500	600	250	40-450	0.9-4.5	20-1000	3.15/5000	0.009	115	70-85	E14/E15
KST4000C	600-2500	4000	40-80	500	600	300	40-450	0.9-4.5	20-1000	3.15/5000	0.007	115	100-125	E14/E15

LiUjiNG Liujing Electronics

CE PICC CQC ISO9001:2000 RoHS

高频可控硅(平板式) High Frequency Thyristor (Capsule Version)

Features

- All diffuse techinics
- Diffuse bigger trigger
- Low switch loss
- Good dynamic feature
- Applicable frequence
- 2.5KHz-10KHz
- Ceramic disc type seal
- Bifacial cooled

Typical Applications

- Inverter
- Welder
- Chopper
- Inductor
- Current converter

Explanation

- I_{GT},V_{GT},I_H are all T_A=25℃ test data,others are all T_A=Tjm test data.
- $I^2t=I^2_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{TSM}(A^2S)$
- When at 60Hz,$I_{TSM}(8.3ms)=I_{TSM}(10ms) \times 1.066$, $I^2t(8.3ms)=I^2t(10ms) \times 0.943$,$T_j=T_{jm}$

Type	V_{DRM} V_{RRM}	$IT_{(AV)}$	IT_s/f_m	t_q	I_{TSM}	d_v/d_t	d_i/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
		T_{HS}55℃		100℃	10ms				25℃							
	V	A	A/KHz	μs	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/W	℃	KN	
GST200C	800-1600	200	200/6	10-16	2.4	200	200	30	30-200	0.8-2.5	20-250	3.2/600	0.055	115	5.3-10	E1/E2
GST300C	800-1600	300	300/6	10-16	3.6	200	200	40	30-250	0.8-3.0	20-400	3.2/900	0.035	115	10-20	E2
GST400C	800-1600	400	300/10	8-10	4.8	200		40	30-250	0.8-3.0	20-400	3.2/1200	0.035	115	10-20	E2/E3
GST500C	800-1600	500	500/6	10-16	6	200	200	50	30-250	0.8-3.0	20-400	3.2/1500	0.032	115	15-20	E3/E5
GST600C	800-1600	600	600/6	12-18	7.2	200	250	60	30-250	0.8-3.0	20-400	3.2/1800	0.030	115	18-25	E5/E6
GST800C	800-1600	800	800/6	12-18	9.6	200	250	80	30-250	0.8-3.0	20-400	3.2/2400	0.024	115	19-25	E6/E8
GST1000C	800-1600	1000	1000/6	12-18	12	200	250	100	30-300	0.8-3.0	20-400	3.2/3000	0.022	115	21-30	E8
GST1200C	800-1600	1200	800/8	8-15	14	200	250	100	30-300	0.8-3.0	20-400	3.2/3000	0.022	115	21-30	E8/E9

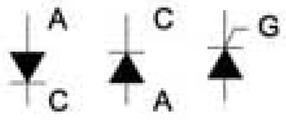
焊机等级二极管可控硅(平板式) Welder Class Diode & Thyritor (Capsule Version)

ZE series feature

- Special for invert welder design
- Low VTM
- Short recovery time
- Fast soft recovery features
- Ceramic disc type seal bifacial coolde

KE series feature

- Special for invert welder design
- Diffuse biffer trigger
- Low VTM
- Short switch loss
- Good dynamic feature
- Could work at high switch frequency



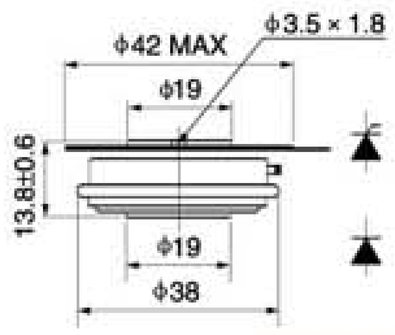
Type	V_{DRM} V_{RRM}	$IF_{(AV)}@T_{hs}$		T_{rr}	Q_{rr}	I_{FSM}	I^2t	I_{RRM}	V_{FM}/I_{FM}	V_{F0}	r_F	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
				100℃		10ms		25℃		150℃					
	V	A	℃	μs	μc	KA	KA^2s	mA	mA	V	mΩ	℃/W	℃	KN	
ZE200	200-800	200	126	3	300	5.4	100	30	2.0/900	1.38	0.40	0.055	150	5.3-10	E25
ZE300	200-800	300	122	3	500	6.7	220	40	2.0/1500	1.35	0.36	0.035	150	10-20	E25
ZE500	200-800	500	122	3	500	6.7	220	50	2.0/1500	1.35	0.35	0.035	150	15-20	E25

Type	V_{DRM} V_{RRM}	$IT_{(AV)}@T_{hs}$		t_q	IT_{SM}	d_v/d_t	d_i/d_t	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{TH(j-hs)}$	T_{jm}	M^2	Outline
				100℃	10ms				25℃				115℃					
	V	A	℃	μs	KA	V/μs	A/μs	mA	mA	V	mA	V/A	V	mΩ	℃/W	℃	KN	
KE200	200-800	200	94	10-28	3.8	200	200	30	40-250	0.9-2.5	20-400	2.4/600	1.38	1.39	0.055	115	5.3-10	E25
KE300	200-800	300	96	10-28	5	200	200	40	40-250	0.9-2.5	20-400	2.4/900	1.32	1.36	0.035	115	10-20	E25
KE500	200-800	500	96	10-28	5	200	200	50	40-250	0.9-2.5	20-400	2.4/900	1.32	1.35	0.035	115	15-20	E25

Type	IF(AV)	V_{RRM}	I_{RRM}	$IF_{(SM)}$	12T	V_{FM}/I_{FM}	rF	R_{thjc}	Tjm	M^2	Outline
	A	V	mA	A	KA2S	V/KA	mΩ	℃/W	℃	KN	
SD4000	4000	200-600	100	50KA	18000	1.3/14	0.04	0.03	-40-+150	25	E23
SD6000	6000	200-600	100	60KA	18000	1.3/15	0.04	0.025	-40-+150	25	E23
SD8000	8000	200-600	100	80KA	18000	1.3/16	0.04	0.02	-40-+150	25	E24

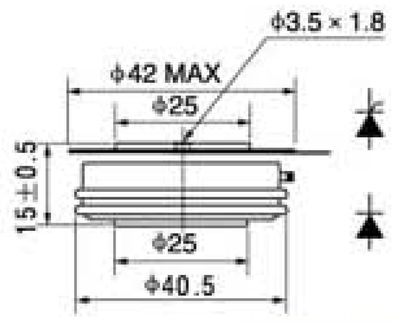
出口型-平板式器件外形尺寸图 Export Type Capsule Version Outline

E1 A-PUK



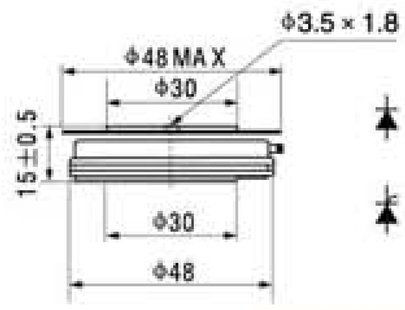
Φ 26	Power	Install force
	100-200A	3.3-5.5KN

E2 E-PUK



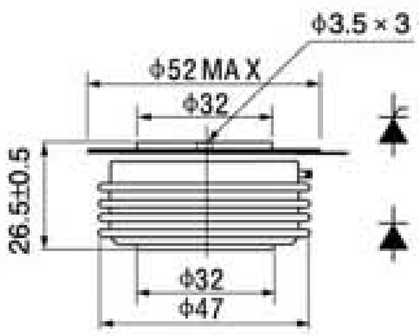
Φ 30	Power	Install force
	200-300A	5.5-10KN

E3



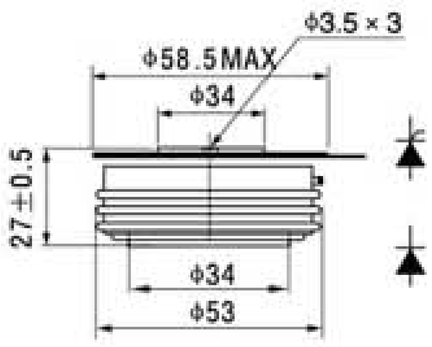
Φ 36	Power	Install force
	300-500A	10-20KN

E4



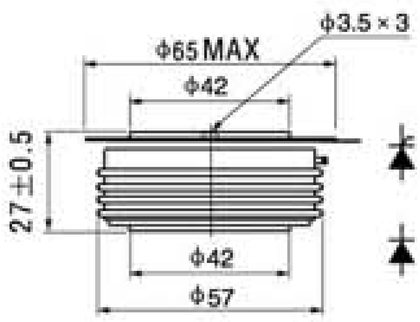
Φ 36	Power	Install force
	200-500A	10-20KN

E5 B-PUK



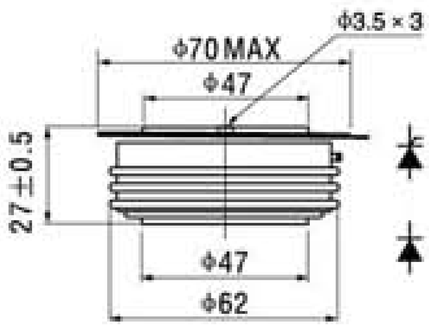
Φ 40	Power	Install force
	300-800A	15-20KN

E6



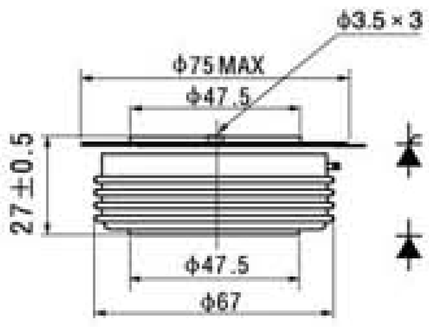
Φ 45	Power	Install force
	500-800A	15-20KN

E7



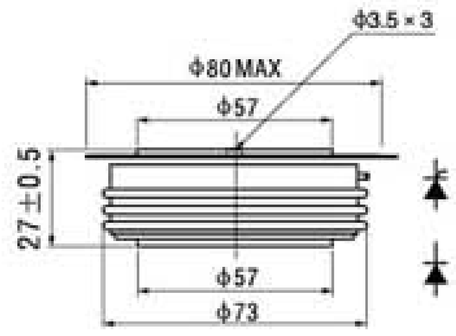
Φ 50	Power	Install force
	800-1000A	18-25KN

E8 K-PUK



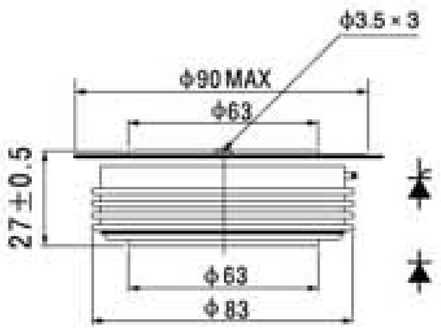
Φ 55	Power	Install force
	1000-1500A	19-26KN

E9



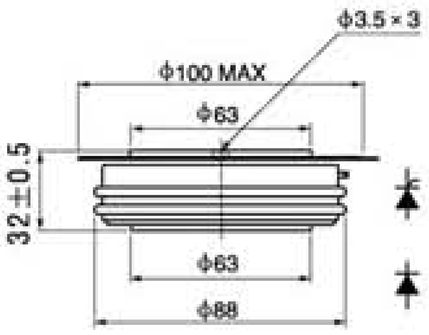
Φ 60	Power	Install force
	1500-2500A	21-30KN

E10



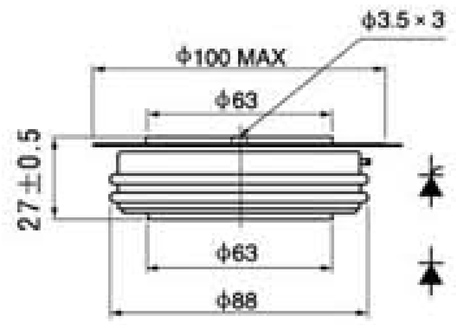
Φ 65	Power	Install force
	1500-2500A	27-34KN

E11



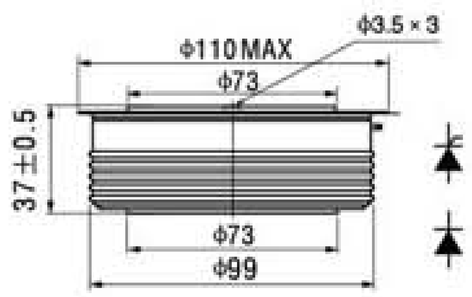
Φ 70	Power	Install force
	2000-3000A	30-40KN

E12



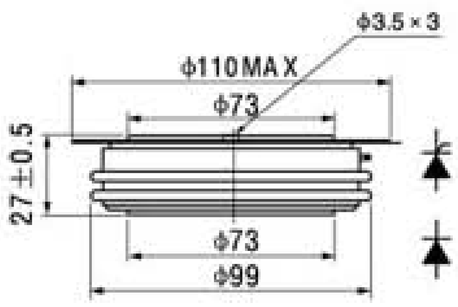
Φ 70	Power	Install force
	2000-3000A	30-40KN

E13 R-PUK



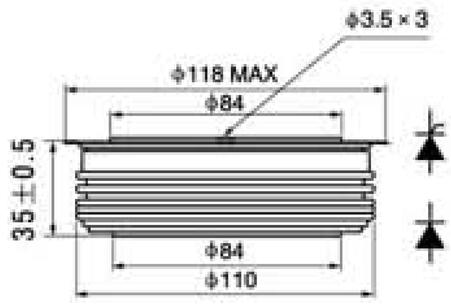
Φ 80	Power	Install force
	2500-5000A	35-45KN

E14



Φ 80	Power	Install force
	2500-5000A	35-45KN

E15



Φ 90	Power	Install force
	4000-5000A	70-85KN

俄罗斯型器件(平板式) Russian Type Semiconductors (Capsule Version)

Features

- All diffuse techinics
- Ceramic disc type seal
- Middle trigger
- Bifacial cooled
- High current

Typical Applications

- Big power transformer
- AC & DC motor control
- AC & DC switch
- Phase control rectification
- Inverter
- Welder

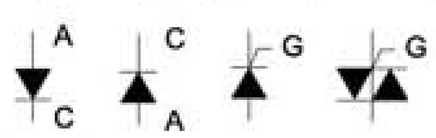
Ordering information Table

Device Code T - I 43 - 800 - 16
① ② ③ ④ ⑤

1 -D=Standard recovery diode DF=Fast recovery diode
DL=Avalanche rectifier diode T=Phase control thyristor
TB=Fast thyristor TC=Triac thyristor
2 -Voltage & cut time class
3 -Device outline code
4 -Current code=$I_{F(AV)}$ or $I_{T(AV)}$
5 -Voltage code=Code × 100=V_{RRM}

Explanation

- I_{GT},V_{GT},I_H are all T_A=25℃ test data,others are all T_A=T_{jm} test data.
- $I^2t=I^2_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{TSM}(A^2S)$
- When at 60Hz,$I_{TSM}(8.3ms)=I_{TSM}(10ms) \times 1.066$,$T_j=T_{jm}$ $I^2t(8.3ms)=I^2t(10ms) \times 0.943$,$T_j=T_{jm}$



俄罗斯型普通整流二极管(平板式) Russian Type Standard Recovery Diodes(Capsule Version)

Type	V_{RRM}	I_{RRM}	$I_{F(AV)}$ Tc55℃	$I_{F(RSM)}$ Tc70℃	I_{FSM} 10ms	V_{FM}/I_{FM} 25℃	T_j	R_{jc}	M^2	Wt	Outline
	V	mA	A	A	kA	V/A	℃	℃/W	KN	kg	
D123-200	400-3000	35	200	435	3.0	2.60/628	-40 ~ +150	0.08	6	0.091	RC1 RC2
D123-250	400-3000	35	250	550	3.5	2.45/785		0.08	6	0.091	
D123-320	400-3000	35	320	650	4.2	2.25/1005		0.08	6	0.091	
D123-400	400-3000	35	400	960	5.5	1.90/1255		0.08	6	0.091	
D123 -500	400-3000	35	500	1200	7.5	1.80/1570		0.08	6	0.070	
D123-530	400-3000	35	530	1512	9.0	1.30/1978		0.08	6	0.070	
D133-400	400-5000	50	400	1200	7	2.10/1256		0.036	10	0.180	RC3
D133 -500	400-5000	50	500	1770	11	1.70/1570		0.038	10	0.180	
D133-630	400-5000	35	630	1970	11	1.80/1978		0.040	10	0.180	
D133-800	400-5000	40	800	2520	12	1.60/2512		0.038	10	0.180	
D133-1000	400-5000	40	1000	2530	16	1.55/3140		0.036	10	0.180	
D143-630	400-5000	50	630	1695	10.5	2.10/1978		0.027	15	0.240	RC4
D143-800	400-5000	50	800	2825	16	1.55/2512		0.027	15	0.240	
D143-1000	400-5000	65	1000	3170	19	1.55/3140		0.027	15	0.240	
D143-1250	400-5000	70	1250	3285	20	1.65/3925		0.027	15	0.240	
D243-800	400-5000	45	800	1755	12.5	1.95/2512		0.030	15	0.240	
D243-1000	400-5000	50	1000	2610	18	1.65/3140		0.030	15	0.240	
D153-1000	400-5000	100	1240	2420	16	2.00/3140		0.018	26	0.550	RC6
D153-1250	400-5000	100	1480	2950	18	1.95/3925		0.018	26	0.550	
D153-1600	400-5000	100	1820	3455	22	1.80/5024		0.018	26	0.550	
D173-2000	400-5000	150	2180	4265	28	2.00/6280		0.010	45	1.200	RC8
D173-2500	400-5000	150	2800	5485	32	1.95/7850		0.010	45	1.200	
D173-3200	400-5000	150	3200	6455	40	1.80/10048		0.010	33	1.200	
D173-4000	400-5000	150	4660	9200	50	1.65/12580		0.011	45	1.200	
D173-5000	400-5000	150	5640	11544	65	1.45/15700		0.010	45	1.200	

俄罗斯型快恢复二极管(平板式) Russian Type Fast Recovery Diodes (Capsule Version)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	IF_{SM}	V_{FM}/I_{FM}	T_{rr}	Q_{rr}	T_j	R_{jc}	M^2	Wt	Outline
			Tc55℃	Tc70℃	10ms	25℃	100℃	100℃					
	V	mA	A	A	kA	V/A	MS	μc	℃	℃/W	KN	kg	
DF323-200	400-3000	50	200	400	3.0	3.20/628	≤2	70		0.08	4.5	0.091	RC1
DF323-250	400-3000	50	250	500	4.5	1.95/785	≤3	70		0.08	4.5	0.067	RC2
DF333-300	400-3000	50	300	600	6.5	2.30/1250	≤3	100		0.04	10	0.180	RC3
DF333-400	400-3000	40	400	628	6.5	2.50/1256	≤3	100	-40	0.04	10	0.180	
DF343-500	400-3000	50	500	785	10.5	3.00/1570	≤3	120	~	0.035	15	0.240	RC4
DF343-800	400-3000	40	800	1600	12.5	2.80/2500	≤4	130	+150	0.035	15	0.240	
DF343-1000	400-3000	40	1000	2000	14.5	2.30/3140	≤4	150		0.035	15	0.240	
DF353-800	400-3000	50	800	1600	9.5	3.50/2500	≤4	130		0.02	24	0.550	RC6
DF353-1000	400-3000	100	1000	2000	16.0	3.20/2512	≤4	150		0.02	24	0.550	

俄罗斯型雪崩整流二极管(平板式) Russian Type Avalanche Rectifier Diodes (Capsule version)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	IF_{SM}	i^2t	V_{FM}/I_{FM}	T_{TO}	r_T	PRSM	T_j	R_{jc}	M^2	Wt	Outline
			Tc55℃	Tc70℃	10ms		25℃			100mks					
	V	mA	A	A	kA	A^2S10^3	V/A	V	mΩ	kW	℃	℃/W	kN	kg	
DL123-320	400-1600	25	320	770	5.5	151	1.65/1000	0.90	0.830	16		0.075	6	0.070	RC2
DL133-500	400-1600	25	500	1430	12	720	1.50/1570	0.85	0.410	16		0.040	10	0.180	RC3
DL153-800	400-2000	100	800		12	720	2.50/1500			16	-40	0.020	24	0.550	RC6
DL153-1000	400-2000	50	1250	2240	13	1620	3.00/3140	1.30	0.540	16	~	0.020	22	0.550	
DL153-1250	1200-3200	50	1250	1740	26	3380	2.00/4000	1.10	0.350	16	+150	0.020	24	0.550	
DL153-1600	1200-3200	50	1600	2980	26	3380	2.00/5024	1.00	0.300	16		0.020	24	0.550	
DL153-2000	1600-3200	50	2000	2650	30	4500	1.80/6280	0.90	0.185	16		0.020	24	0.550	
DL173-3200	2400-3200	100	3250	5760	45	10125	2.2/10053	1.10	0.124	16		0.011	45	1.300	RC8
DL173-4000	1600-2400	100	3860	6870	50	12500	2.2/12560	1.00	0.080	16		0.011	45	1.300	

俄罗斯型普通可控硅(平板式) Russian Type Phase Control Thyristors (Capsule version)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			Tc55℃	Tc70℃	10ms	25℃			25℃								
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	KN	kg	
T123-200	400-1600	15	200	265	4.0	1.90/628	200	200-1600	3.5	250	≤200		0.08	250	6	0.07	RC1
T123-250	400-1600	20	250	750	4.5	1.75/785	200	200-1600	3.5	250	≤200		0.08	250	6	0.07	RC2
T123-320	400-1600	20	330	1090	5.0	1.65/1005	200	500-1600	2.5	250	≤200		0.08	100-200	6	0.07	
T123-500	400-800	30	500	550	6.0	1.50/1570	200	500-1600	2.5	200	≤250		0.07	63-125	6	0.07	
T133-400	400-1600	30	400	935	8.0	1.75/1258	200	200-1600	2.5	200	≤250		0.045	250	10	0.18	RC2
T133-500	100-800	50	500	1720	10	1.50/1570	320	500-1600	2.5	150	≤250		0.035	160	10	0.10	RC3
T233-500	400-1800	30	500	1160	9.0	1.80/1570	200	500-1600	2.5	250	≤250		0.04	100-200	10	0.10	
T133-600	100-800	50	600	2085	12	1.60/2512	200	500-1600	2.5	250	≤250		0.035	63-125	10	0.18	
T133-630	100-1200	40	630	1430	12	1.65/1978	200	500-1600	2.5	250	≤250		0.04	80-160	10	0.10	
T143-500	400-1600	40	500	1175	11	1.80/1570	200	200-1600	3.5	300	≤250		0.034	250	15	0.240	RC4
T243-500	1800-3200	40	550	1110	10	2.00/1570	200	500-1600	2.5	250	≤250		0.034	200-400	15	0.240	RC5
T143-600	900-1800	70	640	1250	9.0	1.95/1978	200	500-1600	2.5	250	≤300	-40	0.032	160-320	15	0.240	
T143-1000	100-1200	50	800	1585	14	1.70/2512	200	500-1600	2.5	250	≤300	~	0.032	100-200	15	0.160	
T143-1250	100-800	30	1045	1860	19	1.60/3140	200	500-1600	2.5	250	≤300	+125	0.030	80-160	15	0.160	
T153-800	100-1000	50	800	1840	20	1.90/2512	200	200-1600	3.5	300	≤300		0.024	100-400	24	0.500	RC6
T153-1250	100-800	100	1250	3000	18	1.50/4000	300	500-1600	3.5	300	≤300		0.016	100-400	24	0.550	RC7
T153-1600	100-800	100	1600	3500	22	1.45/5000	300	500-1600	3.5	200	≤300		0.016	100-400	24	0.550	
T253-500	5200-6000	150	530	1175	10	2.40/1570	100	500-1600	3.5	200	≤300		0.026	100-400	24	0.550	
T253-800	2000-2400	70	800	1470	17	2.10/2500	200	200-1600	3.5	350	≤300		0.020	100-400	24	0.550	
T253-1000	1000-1800	70	1000	2300	22	1.80/3140	200	200-1600	3.5	300	≤300		0.020	100-400	24	0.550	
T253-1250	400-1800	70	1250	1830	28	1.60/3925	200	200-1600	3.5	300	≤300		0.018	100-400	24	0.550	
T173-2000	1600-2000	200	2000	4600	49	1.65/6280	320	500-1600	3.5	300	≤300		0.011	100-400	24	1.200	RC8
T173-2500	200-2400	100	2700	5750	52	1.70/7850	200	500-1600	3.5	350	≤300		0.010	100-400	24	1.200	
T173-3200	200-2400	200	3360	7360	60	1.50/10050	320	500-1600	3.5	300	≤300		0.010	100-400	24	1.200	
T173-4000	200-2400	200	4000	9200	62	1.50/12560	200	500-1600	3.5	300	≤300		0.010	100-400	24	1.200	

俄罗斯型双向可控硅(平板式) Russian Type Triac Thyristors (Capsule Version)

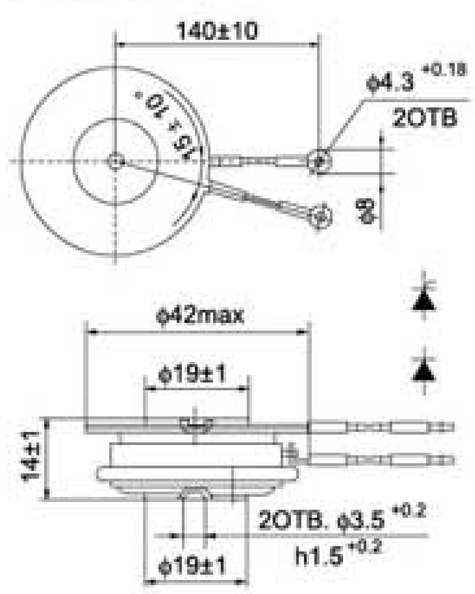
Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	di/dt	dv/dt	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	M^2	Wt	Outline
			T_c55℃	10ms	25℃				25℃						
	V	mA	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	KN	kg	
TC123-200	200-1600	25	200	1.2	2.50/320	25	6.3-100	3.0	300	≤300	-40 ~ +125	0.037	10	0.100	RC2
TC123-300	200-1600	25	300	1.6	2.20/500	25	6.3-100	3.0	300	≤300		0.037	10	0.100	
TC133-500	200-1600	25	500	3.0	2.50/700	25	6.3-100	3.0	300	≤300		0.04	10	0.180	RC3
TC133-630	200-1600	25	630	3.3	2.20/800	63	6.3-100	3.0	300	≤300		0.37	10	0.180	
TC143-800	200-1600	25	800	4.5	1.95/120	25	6.3-100	3.0	300	≤400		0.03	10	0.240	RC4
TC143-1000	200-1600	25	1000	5.0	1.75/1400	25	6.3-100	3.0	300	≤400		0.028	10	0.240	

俄罗斯型快速可控硅(平板式) Russian Type Fast Thyristors (Capsule Version)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	di/dt	dv/dt	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			T_c55℃	T_c70℃	10ms	25℃				25℃							
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	KN	kg	
TB323-400	300-1400	40	400	628	6.5	2.7/1250	500	500-1000	3.5	300	≤200	-40 ~ +125	0.035	12.5,16,32,40	10	0.10	RC2
TB333-500	300-1400	40	500	785	7.5	2.2/1570	500	500-1000	3.5	300	≤200		0.035	16,20,25,32,40	10	0.18	RC3
TB343-500	500-1000	50	500	785	9.0	2.6/1570	500	500-1000	3.5	300	≤200		0.028	25,2,40	15	0.16	RC4
TB143-630	500-1400	50	630	990	10.5	2.1/2000	500	500-1000	3.5	300	≤300		0.028	25,32,40,50	15	0.16	
TB153-630	600-1400	100	630	990	1.5	2.4/2000	630	1000-1600	3.5	400	≤300		0.021	20,25,32,40,50	24	0.55	RC5
TB453-800	600-1400	100	800	1250	15.0	2.3/2500	630	1000-1600	3.5	400	≤300		0.021	25,32,40,50,63	24	0.55	
TB143-500 "	1400-2400	70	500	800	9.0	2.5/1570	500	500-1000	2.5	300	≤200		0.035	25,32,40,50,63	15	0.24	RC4
TB553-800 "	1400-2400	120	800	1250	17.0	2.8/2500	630	500-1000	2.5	400	≤400		0.021	25,32,40,50,63	24	0.55	RC6
TB453-1000 "	600-1400	100	1000	1600	16.0	2.5/3140	630	1000-1600	3.5	400	≤400		0.021	40,50,63	24	0.55	
TB273-2000 "	1400-2400	120	2000	3200	40.0	1.85/6280	1000	500-1000	5.0	400	≤400		0.011	40,50,63	45	1.20	RC8

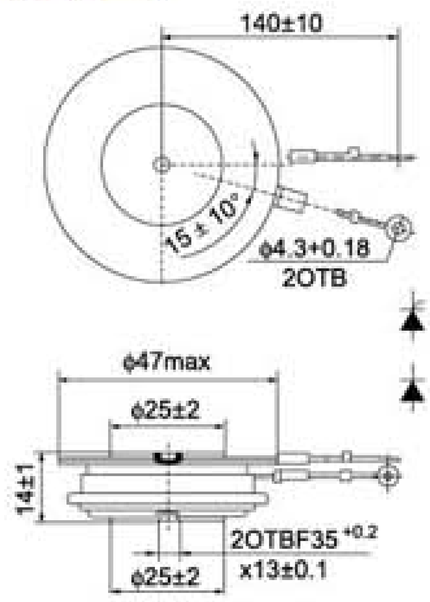
俄罗斯型平板式器件外型 Russian Type Capsule Version Outline

RC1(123)



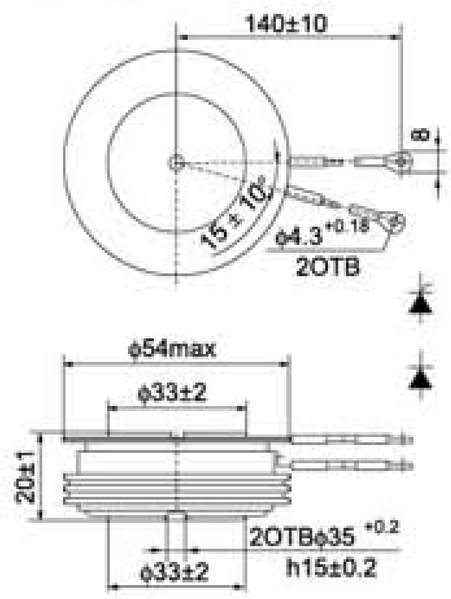
ϕ 26	Power	Install force
	200-300A	10-20KN

RC2(123B)



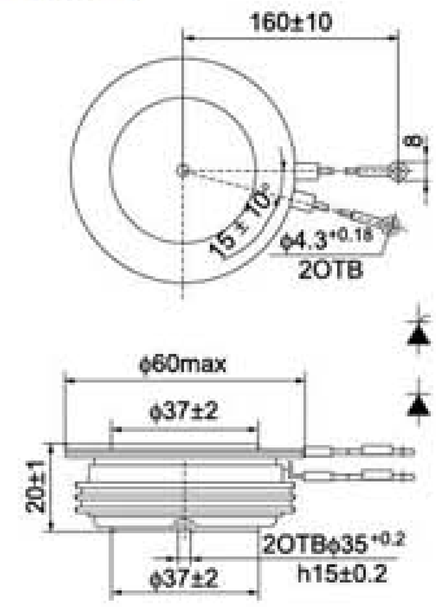
ϕ 30	Power	Install force
	300-600A	15-20KN

RC3(133)



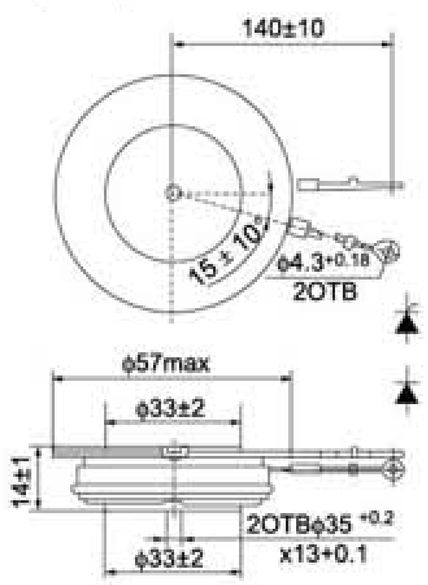
ϕ 40	Power	Install force
	500-800A	15-20KN

RC4(143)



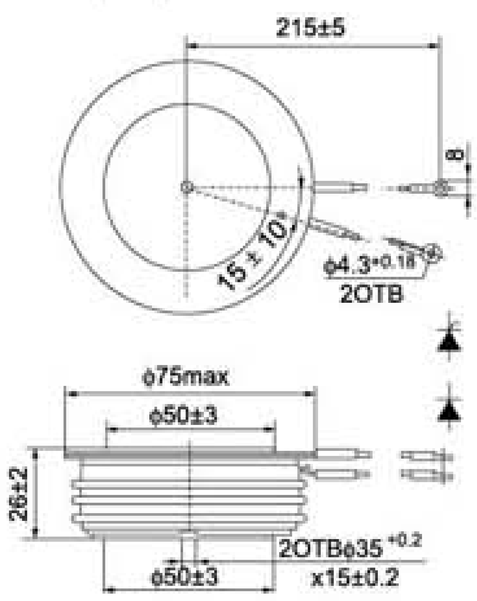
ϕ 45	Power	Install force
	500-1000A	18-25KN

RC5(143B)



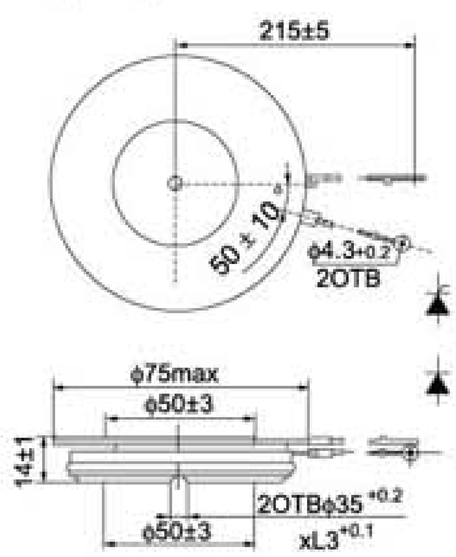
ϕ 45	Power	Install force
	500-1000A	18-25KN

RC6(153)



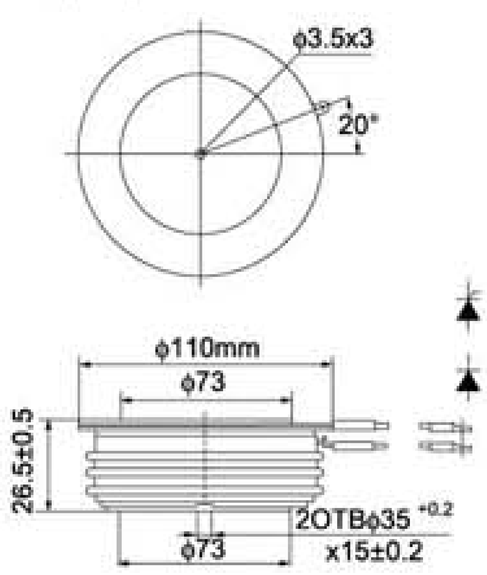
ϕ 55	Power	Install force
	1000-2000A	20-30KN

RC7(153B)



ϕ 60	Power	Install force
	1000-2000A	30-40KN

RC8(173)



ϕ 80	Power	Install force
	2000-4000A	35-40KN

<< 螺旋式半导体器件

나선식 반도체장치

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Press-fit Diode Series

国标型-普通整流二极管 (螺旋式) Chinese Type Rectifier Diodes (Stud Version)

特征

- 正向平均电流: 5-500A
- 反向重复峰值电压: 100-5000V
- 金属螺柱型结构
- 全封闭陶瓷-金属螺柱型结构
- 符合JB/T8949.2-1999标准
- 承受高浪涌电流能力
- 螺栓为阴极或阳极的正向或反向结构

典型应用

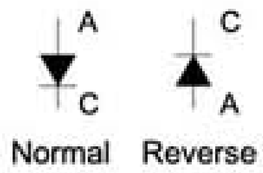
- AC/DC变换器
- 直流电源
- 机床控制

Features

- $IF_{(AV)}$=5-500A
- V_{RRM}=100-5000V
- Metal stud structure
- Hermetic ceramic-metal stud structure
- Conform to national standard JB/T8949.2-1999
- Capacity of supporting high surge current
- Stud cathode and stud anode version

Typical Applications

- AC/DC converters
- DC power supplies
- Machine tool controls



型号 Type	正向平均电流 $I_{F(AV)}$ A	正向有效值电流 $I_{F(RMS)}$ A	通态峰值电压 V_{TM} V	反向重复峰值电压 V_{RRM} V	反向重复峰值漏电流 I_{RRM} mA	结壳热阻 R_{jc} ℃/W	工作结温 T_j ℃	外型 Outline	推荐散热器 Heatsink
ZP5A (N)	5	7.9	≤1.6	200~2000	≤2	≤4.0	-40 ~ +150	A1	SL5A
ZP10A (N)	10	16	≤1.6	200~2000	≤2	≤2.5		A2	SL10A
ZP20A (N)	20	31	≤1.6	200~2000	≤6	≤1.4		A3/C1	SL20A
ZP30A (N)	30	47	≤1.6	200~2000	≤6	≤1.0		C2	SL30A
ZP50A (N)	50	79	≤1.6	200~2000	≤12	≤0.6		C3	SL50A
ZP100A (N)	100	160	≤1.8	200~2000	≤12	≤0.3		C4	SL100A
ZP200A (N)	200	310	≤1.8	200~3000	≤12	≤0.2		C5	SL200A
ZP300A (N)	300	470	≤1.8	200~3000	≤15	≤0.11		C6	SL300A
ZP400A (N)	400	550	≤1.8	200~5000	≤15	≤0.80		C7	SL500A
ZP500A (N)	500	630	≤1.8	200~5000	≤15	≤0.068		C7/C8	SL500A

国标型-普通晶闸管 (螺旋式) Chinese Type Phase Control Thyristors (Stud Version)

特征

- 通态平均电流: 5-500A
- 正反向重复峰值电压: 100-5000V
- 全密封陶瓷-金属螺柱型结构
- 全封闭玻璃-金属螺柱型结构
- 符合JB/T8950.2-1999标准
- 符合IEC国际电工委员会标准

典型应用

- 直流电机控制
- 直流电源控制
- 交流开关及温度控制
- 同步电机励磁

Features

- $IT_{(AV)}$=5-500A
- V_{DRM}/V_{RRM}=100-5000V
- Hermetic ceramic-metal stud structure
- Hermetic glass-metal stud structure
- Conform to national standard JB/T8950.2-1999
- Conform to IEC international electrical committee standard

Typical Applications

- DC motor controls
- Controls DC power supplies
- AC switch and thermal control
- Synchronous motor excitation

型号 Type	通态平均电流 $IT_{(AV)}$ A	正向电流有效值 $I_{F(RMS)}$ A	通态峰值电压 V_{TM} V	正反向重复峰值电压 V_{RRM} V	断态重复峰值电流 I_{DRM} mA	触发电流 I_{GT} mA	触发电压 V_{GT} V	维持电流 I_H mA	断态电压临界上升率 dv/dt V/μs	通态电流临界上升率 di/dt A/μs	工作结温 T_j ℃	结壳热阻 R_{jc} ℃/W	外型 Outline	推荐散热器 Heatsink
KP5A	5	8	≤2.2	200~2000	≤8.0	5~45	≤2.5	5~45	≥500	/	-40 ~ +125	≤3.0	B1	SL5A
KP10A	10	16	≤2.2	200~2000	≤8.0	5~45	≤2.5	5~45	≥500	/		≤2.5	B2	SL10A
KP20A	20	32	≤2.2	200~2000	≤8.0	5~45	≤2.5	5~45	≥500	/		≤1.0	B3/D1	SL20A
KP30A	30	48	≤2.2	200~2000	≤10	5~50	≤2.5	5~50	≥800	≥100		≤0.5	D2	SL30A
KP50A	50	80	≤2.4	200~2000	≤10	10~150	≤2.5	10~150	≥800	≥100		≤0.14	D3	SL50A
KP100A	100	160	≤2.4	200~2000	≤10	10~200	≤2.5	10~200	≥800	≥100		≤0.11	D4	SL100A
KP200A	200	320	≤2.6	200~2000	≤10	20~200	≤2.5	20~200	≥800	≥100		≤0.11	D5	SL200A
KP300A	300	480	≤2.6	200~2000	≤30	20~200	≤2.5	20~200	≥800	≥100		≤0.08	D6	SL300A
KP400A	400	640	≤2.6	200~3000	≤30	20~200	≤2.5	20~200	≥800	≥100		≤0.06	D7	SL500A
KP500A	500	800	≤2.6	200~3000	≤30	20~200	≤2.5	20~200	≥800	≥100		≤0.04	D7/D8	SL500A

国标型-双向晶闸管 (螺旋式) Chinese Type Triac Thyristors (Stud Version)

特征

- 通态平均电流: 5-200A
- 正反向重复峰值电压: 100-2000V
- 全密封陶瓷-金属螺柱型结构
- 全封闭玻璃-金属螺柱型结构
- 符合GB4193-1986部分标准
- 符合IEC国际电工委员会标准

Features

- $IT_{(AV)}$=5-200A
- V_{DRM}/V_{RRM}=100-2000V
- Hermetic ceramics-metal stud structure
- Hermetic glass-metal stud structure
- Conform to national standard GB4193-1986
- Conform to IEC international electrical committee standard

Triac thyristor

典型应用

- 快速马达控制
- 温度控制
- 交流开关

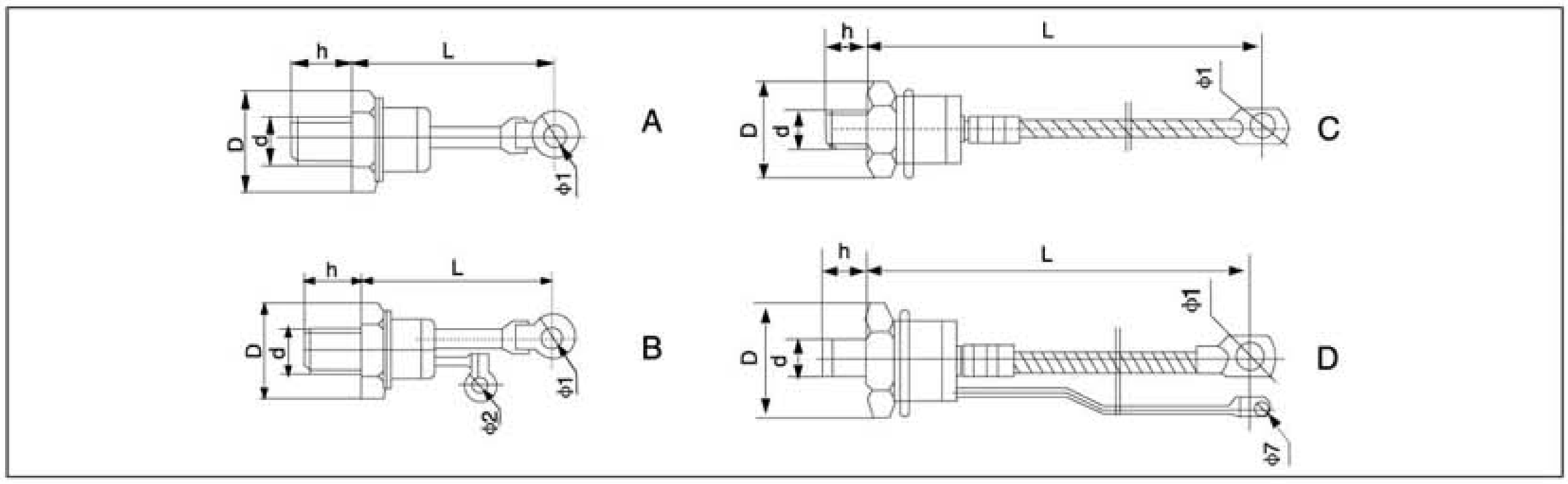
Typical Applications

- Fast motor control
- Thermal control
- AC switch

型号 Type	通态电流有效值 $IT_{(RMS)}$ A	通态峰值电压 V_{TM} V	反向重复峰值电压 V_{RRM} V	反向重复峰值漏电流 I_{RRM} mA	触发电流 I_{GT} mA	触发电压 V_{GT} V	维持电流 I_H mA	断态电压临界上升率 dv/dt V/μs	换向电压临界上升率 dv/dt V/μs	工作结温 T_j ℃	结壳热阻 R_{jc} ℃/W	外型 Outline	推荐散热器 Heatsink
KS5A	5	≤2.6	200~2000	≤10	5~45	≤2.5	5~45	≥500	≥10	-40 ~ +125	≤0.11	B1	SL5A
KS10A	10	≤2.6	200~2000	≤10	5~45	≤2.5	5~45	≥500	≥10		≤0.11	B2	SL10A
KS20A	20	≤2.6	200~2000	≤10	5~45	≤2.5	5~45	≥500	≥10		≤0.11	B3	SL20A
KS30A	30	≤2.6	200~2000	≤20	5~50	≤2.5	5~50	≥500	≥10		≤0.11	D2	SL30A
KS50A	50	≤2.6	200~2000	≤20	10~150	≤2.5	10~150	≥500	≥10		≤0.11	D3	SL50A
KS100A	100	≤2.6	200~2000	≤30	20~200	≤2.5	20~200	≥500	≥10		≤0.11	D4	SL100A
KS200A	200	≤2.6	200~2000	≤30	20~200	≤2.5	20~200	≥500	≥10		≤0.11	D5	SL200A

国标螺旋式外型尺寸对照表 Chinese Type Stud Version Outline List

Type	Outline No.	Dimension (mm)					
		d	D	L	h	ϕ1	ϕ2
50A	A1 B1	6	16	29	10	3	2
10A	A2 B2	8	22	39	13	4	2
20A	A3 B3	10	22	39	13	4	2
20A(L)	C1 D1	10	27	180	13	6	2
30A	C2 D2	12	32	170	15	6.5	5
50A	C3 D3	12	36	175	15	6.5	5
100A	C4 D4	16	36	200	16	8	5
200A	C5 D5	20	43	225	20	9	5
300A	C6 D6	20	49	240	20	9	5
400A/500A	C7 D7	30	57	300	26	15	5
500A	C8 D8	30	74	390	30	15	5



LiUjiNG®
Liujing Electronics

CE PICC CQC ISO9001:2000 RoHS

出口型-普通整流二极管(螺旋式) Export Type Rectifier Diodes (Stud Version)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Metric device version available

Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls

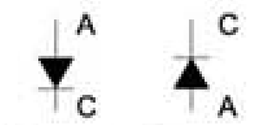
Ordering Information Table

Device Code FR (1) 70 (2) HF (3) R (4) 120 (5) M (6) L (7)

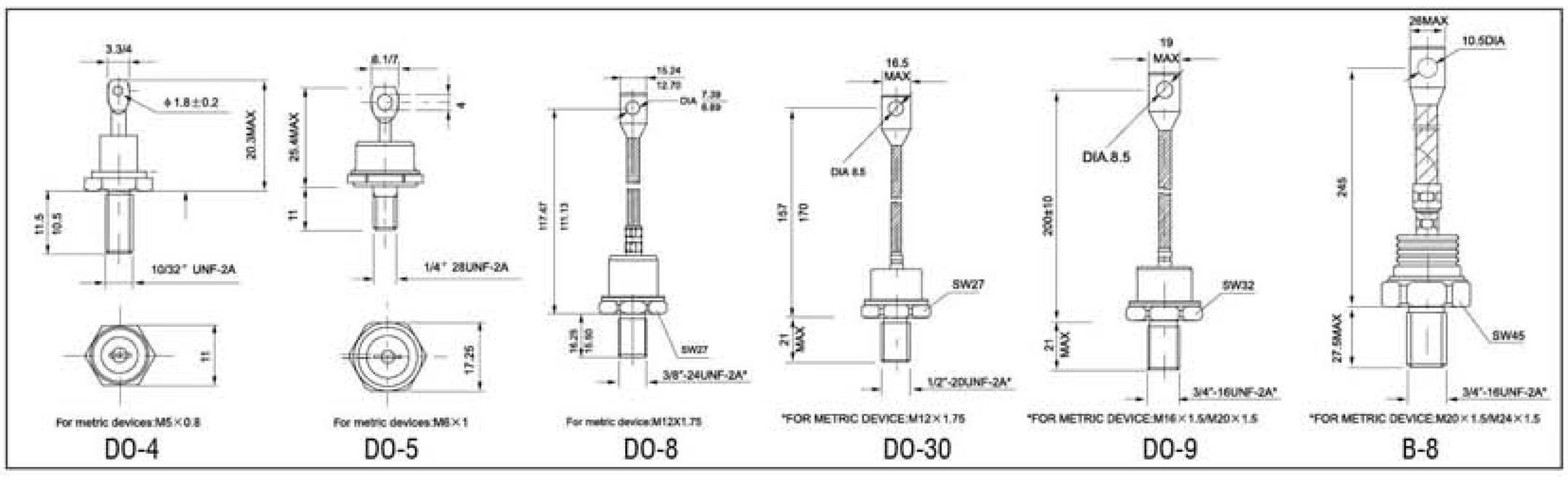
1 -None=Standard recovery diodes;
FR=Fast recovery diodes
2 -Current code=$IF_{(AV)}$
3 -Outline code: F=DO-4 case 6A~25A; HF=DO-5 case 30A~85A
U=DO-8,DO-9 case 100A~300A
4 -None=Stud Normal Polarity (cathode to stud)
R=Stud Reverse Polarity (anode to stud)
5 -Voltage code=code x 10=V_{RRM}
6 -None=Standard inch Device; M=Metric Device
7 -Bigger size

Notice: If you need metric size or cerainic version, pls contact with LIUJING

Polarity



Type	$IF_{(AV)}$ T_{HS}55℃	V_{FM}/I_{FM} 25℃		$IF_{(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_j	M^2	Wt	Outline
	A	V	A	A	V	mA	℃/W	℃	N/m	kg	
6F(R)	6	1.1	18	9.0	200~1200	≤6	≤2.0		≤1.0	0.008	DO-4
12F(R)	12	1.25	36	19.0	200~1200	≤6	≤1.2		≤1.0	0.008	DO-4
16F(R)	16	1.25	48	25.0	200~1200	≤12	≤1.2		≤1.0	0.008	DO-4
25F(R)	25	1.1	75	40.0	200~1200	≤12	≤1.2		≤1.0	0.008	DO-4
30HF(R)	30	1.3	90	48.0	200~1200	≤10	≤0.8		≤2.0	0.020	DO-5
40HF(R)	40	1.3	120	64.0	200~1200	≤10	≤0.8		≤2.0	0.020	DO-5
50HF(R)	50	1.4	150	80.0	200~1200	≤10	≤0.8		≤2.0	0.020	DO-5
60HF(R)	60	1.4	180	96.0	200~1200	≤12	≤0.6		≤2.0	0.020	DO-5
70HF(R)	70	1.45	210	112.0	200~1600	≤12	≤0.5	-40	≤2.0	0.020	DO-5
85HF(R)	85	1.45	255	136.0	200~1600	≤12	≤0.4	~	≤2.0	0.020	DO-5
100U(R)	100	1.8	300	160.0	200~1600	≤15	≤0.3	+150	≤12	0.120	DO-8
150U(R)	150	1.5	450	240.0	200~1600	≤15	≤0.3		≤12	0.120	DO-8
100U(R)L	100	1.8	300	160.0	200~1600	≤15	≤0.3		≤12	0.140	DO-30
150U(R)L	150	1.5	450	240.0	200~1600	≤15	≤0.3		≤12	0.140	DO-30
200U(R)	200	1.3	600	320.0	200~1800	≤20	≤0.2		≤12	0.250	DO-9
250U(R)	250	1.35	750	400.0	200~1800	≤20	≤0.15		≤25	0.250	DO-9
300U(R)	300	1.35	900	480.0	200~1800	≤20	≤0.15		≤25	0.250	DO-9
SD400N(R)	400	1.6	1200	640.0	200~2400	≤40	≤0.07		≤25	0.580	B-8
SD500N(R)	500	1.6	1500	800.0	200~2400	≤40	≤0.065		≤25	0.580	B-8
SD600N(R)	600	1.5	1800	960.0	200~2400	≤40	≤0.065		≤30	0.580	B-8



出口型-普通可控硅(螺旋式) Export Type Phase Control Thyristors (Stud Version)

Features

- High current rating
- Excellent dynamic characteristics
- Superior surge capabilities
- Standard package
- Metric Device version available

Typical Applications

- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed control circuit
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements
- Power supplier & motor controls

Ordering Information Table

Device Code S ① 50 ② RIA ③ 120 ④ M ⑤

1 -None=Standard thyristor
S=Triac thyristor
K=Fast thyristor
2 -Current code=$IT_{(AV)}$
3 -Essential part number
4 -Voltage code: code x 10=V_{RRM}
5 -None=standard inch device
M=metric device

Notice: If you need metric size, pls contact with LIUJING.

Device Code ST ① 300 ② S ③ 16 ④ M ⑤ V ⑥

1 -ST=Standard thyristor
SST=Triac thyristor
KST=Fast thyristor
2 -Current code=$IT_{(AV)}$
3 -S=Stud version device
4 -Voltage code: code x 100=V_{RRM}
5 -None=standard inch device
M=metric device
6 -None=ceramtic seal
V=glass-metal seal

Polarity

Standard thyristor Fast thyristor — Triac thyristor

Type	$IT_{(AV)}$ T_{HS}55℃	V_{TM}/I_{TM} 25℃		$IT_{(RMS)}$	V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	A	V	A	A	V	mA	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
10RIA	10	1.75	30	16	200-1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.8	≤2.0	0.016	TO-48
16RIA	16	1.75	48	25	200-1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	0.016	TO-48
25RIA	25	1.70	75	40	200-1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.016	TO-48
40RIA	40	1.95	120	64	200-1200	≤12	50~200	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.022	TO-65
50RIA	50	1.90	150	80	200-1200	≤12	50~200	≤2.5	≤150	≤200	≥500	≥100		≤0.8	≤2.0	0.022	TO-65
ST80S	80	1.6	240	128	200-1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100	-40 ~ +125	≤0.6	≤12	0.160	TO-94
ST100S	100	1.6	300	160	200-1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤12	0.160	TO-94
ST130S	130	1.55	390	208	200-1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.55	≤12	0.160	TO-94
ST150S	150	1.6	450	240	200-1600	≤20	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.5	≤12	0.160	TO-94
ST180S	200	1.75	600	320	200-1800	≤20	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.4	≤25	0.280	TO-93
ST230S	250	1.75	750	400	200-1800	≤20	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.2	≤25	0.280	TO-93
ST280S	280	1.70	840	450	200-1800	≤25	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.15	≤25	0.280	TO-93
ST300S	300	1.5	900	480	200-2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.10	≤30	0.580	TO-118
ST330S	330	1.55	990	530	200-2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.07	≤30	0.580	TO-118
ST350S	350	1.6	1050	560	200-2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.06	≤30	0.580	TO-118

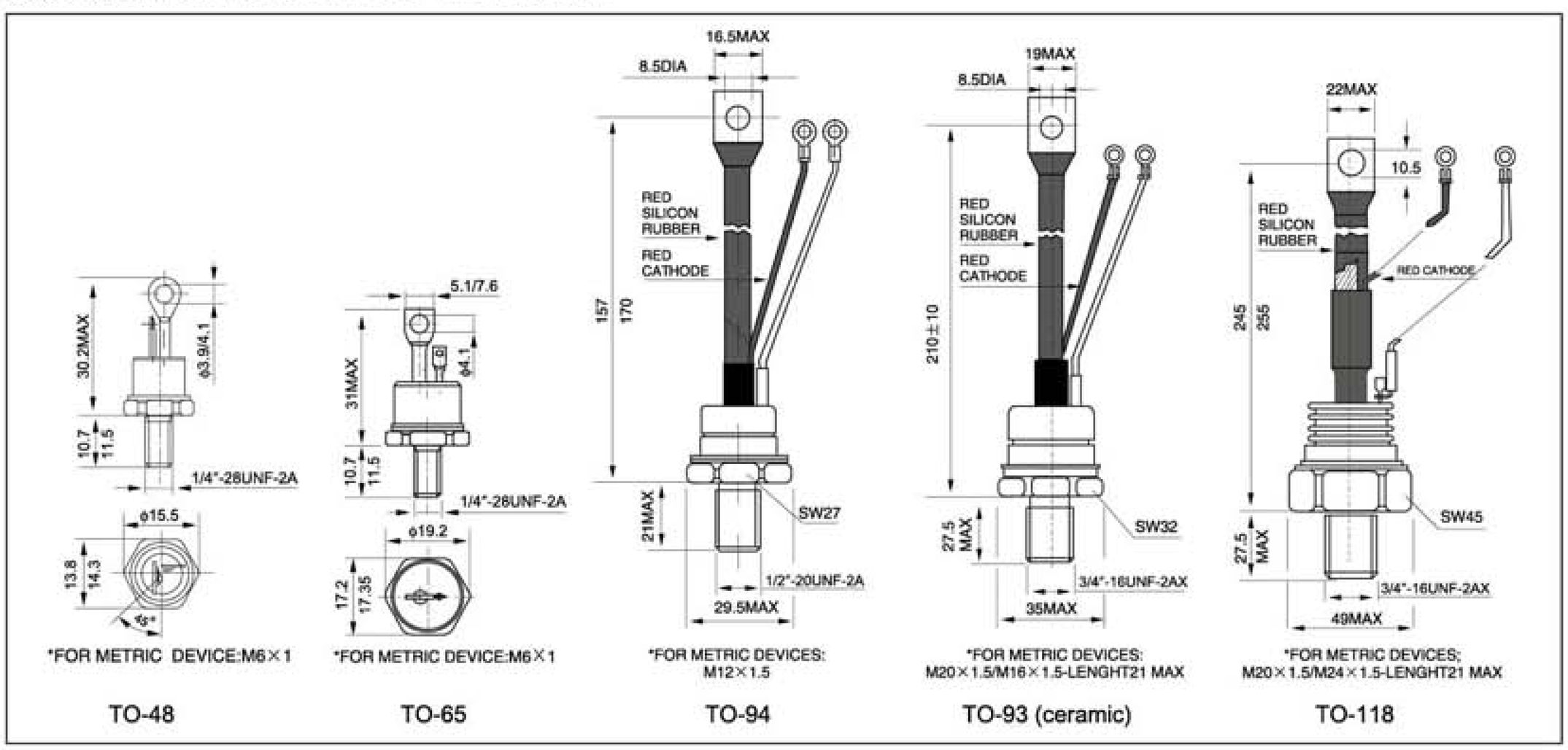
出口型-双向可控硅(螺旋式) Export Type Triac Thyristors (Stud Version)

Type	$IT_{(AV)}$ T_{HS}55℃	V_{TM}/I_{TM} 25℃		V_{RRM}	I_{RRM}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	A	V	A	V	mA	V	mA	mA	v/us	A/us	℃	℃/W	N/m	kg	
S10RIA	10	2.10	30	200-1200	≤15	≤350	≤200	≤250	≥500	≥10		≤0.12	≤2.0	0.016	TO-48
S16RIA	16	2.15	48	200-1200	≤15	≤350	≤200	≤250	≥500	≥10		≤0.12	≤2.0	0.016	TO-48
S25RIA	25	2.35	75	200-1200	≤25	≤350	≤250	≤300	≥500	≥10		≤0.11	≤2.0	0.022	TO-65
S40RIA	40	2.30	120	200-1200	≤25	≤350	≤250	≤300	≥500	≥10		≤0.11	≤2.0	0.022	TO-65
S50RIA	50	2.25	150	200-1200	≤25	≤350	≤250	≤300	≥500	≥10	-40	≤0.11	≤2.0	0.022	TO-65
SST80S	80	2.05	240	200-1600	≤30	≤350	≤250	≤300	≥500	≥10	~	≤0.10	≤12	0.160	TO-94
SST100S	100	2.10	300	200-1600	≤30	≤350	≤250	≤300	≥500	≥10	+125	≤0.10	≤12	0.160	TO-94
SST150S	150	2.25	450	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.09	≤25	0.280	TO-93
SST180S	200	2.40	540	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.09	≤25	0.280	TO-93
SST250S	250	2.40	750	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.08	≤30	0.580	TO-118
SST300S	300	2.45	900	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.08	≤30	0.580	TO-118

出口型-快速可控硅(螺旋式) Export Type Fast Thyristors (Stud Version)

Type	$IT_{(AV)}$ T_{HS}55℃	V_{TM}/I_{TM} 25℃		$IT_{(RMS)}$	V_{RRM}	I_{RRM}	T_q	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	A	V	A	A	V	mA	us	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
K10RIA	10	2.35	30	16	200-1200	≤10	10~20	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.8	≤2.0	0.016	TO-48
K16RIA	16	2.35	48	25	200-1200	≤10	10~20	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	0.016	TO-48
K25RIA	25	2.50	75	40	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.022	TO-65
K40RIA	40	2.55	120	64	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.022	TO-65
K50RIA	50	2.50	150	80	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100	-40	≤0.8	≤2.0	0.022	TO-65
KST80S	80	2.30	240	128	200-1600	≤15	15~25	50~100	≤2.5	≤200	≤400	≥800	≥100	~	≤0.6	≤12	0.160	TO-94
KST100S	100	2.25	300	160	200-1600	≤15	15~25	50~100	≤2.5	≤200	≤400	≥800	≥100	+125	≤0.6	≤12	0.160	TO-94
KST150S	150	2.35	450	240	200-1800	≤20	15~30	50~100	≤2.5	≤200	≤400	≥800	≥100		≤0.5	≤25	0.280	TO-93
KST180S	200	2.40	600	320	200-1800	≤20	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.45	≤25	0.280	TO-93
KST230S	250	2.45	700	400	200-1800	≤25	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.3	≤30	0.580	TO-118
KST300S	300	2.50	900	480	200-1800	≤40	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.25	≤30	0.580	TO-118

螺旋式可控硅外型 Thyristor Stud Version Outline



俄罗斯型二极管(螺旋式) Russian Type Diodes (Stud Version)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications

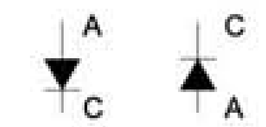
- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls
- Lighting circuits

Ordering Information Table

Device Code D 1 61 - 200 X - 16
① ② ③ ④ ⑤ ⑥

1 -D=Standard recovery diode DF=Fast recovery diode
DL=Avalance rectifier diode
2 -1=Ceramic device
2=Glass-Metal device
3 -Device outline code
4 -Current code=$IF_{(AV)}$
5 -None=Stud Reverse Polarity (anode to stud)
X=Stud Normal Polarity (cathode to stud)
6 -Voltage code=Code × 100=V_{RRM}

Polarity



Normal Reverse

俄罗斯型普通整流二极管(螺旋式) Russian Type Standard Recovery Diodes (Stud Verstion)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	$IF_{(SM)}$	V_{FM}/I_{FM}	T_j	R_{jc}	M^2	Wt	Outline
			T_c55℃		10ms	25℃					
	V	mA	A	A	kA	V/A	℃	℃/W	N/m	kg	
D212-10(X)	100-1200	3	10	15	0.25	1.35/31		2.700	0.9-1.1	0.006	RSD1
D212-16(X)	100-1200	3	16	25	0.27	1.35/50		2.000	0.9-1.1	0.006	RSD1
D212-25(X)	100-1200	3	25	39	0.34	1.35/78		1.250	0.9-1.1	0.006	RSD1
D222-32(X)	100-1200	5	32	50	0.46	1.35/100		1.000	1.4-1.8	0.015	RSD2
D222-40(X)	100-1200	5	40	62	0.55	1.35/125		0.800	1.4-1.8	0.015	RSD2
D232-50(X)	100-1600	6	50	76	1.20	1.35/157		0.600	5.0-6.2	0.027	RSD3
D232-63(X)	100-1600	6	63	96	1.40	1.35/198	-40	0.500	5.0-6.2	0.027	RSD3
D232-80(X)	100-1600	5	80	125	1.50	1.35/250	~	0.400	5.0-6.2	0.027	RSD3
D141-100(X)	100-1600	20	100	180	2.20	1.35/314	+150	0.400	6-10	0.090	RSD4
D151-125(X)	100-1600	20	125	195	3.00	1.35/392		0.300	10-20	0.165	RSD5
D151-160(X)	100-1600	20	160	300	4.50	1.35/502		0.240	10-20	0.165	RSD5
D161-200(X)	100-1800	40	200	400	5.50	1.35/602		0.150	20-30	0.250	RSD6
D161-250(X)	100-1800	40	250	480	6.40	1.35/785		0.140	20-30	0.250	RSD6
D161-320(X)	100-1800	40	320	520	7.50	1.35/1005		0.130	20-30	0.250	RSD6
D171-400(X)	100-2400	50	400	725	14.25	1.40/1256		0.085	20-30	0.465	RSD7
D171-500(X)	100-2400	50	500	760	14.0	1.45/1500		0.080	25-35	0.465	RSD7

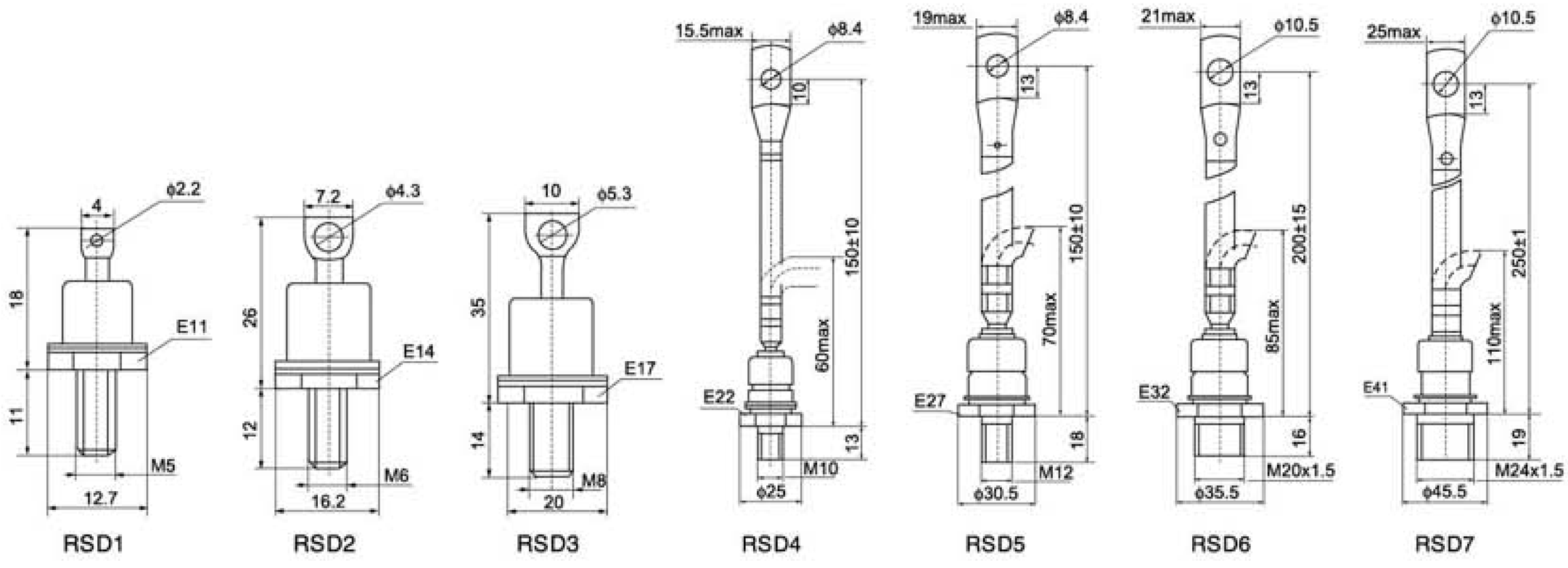
俄罗斯型快恢复二极管(螺旋式) Russian Type Fast Recovery Diodes (Stud Version)

Type	V_{RRM}	I_{RRM}	$I_{F(AV)}$ Tc55℃	$I_{F(RSM)}$	$I_{F(SM)}$ 10ms	$I_{F(SM)}$ 10ms	T_{rr}	T_j	R_{jc}	M^2	Wt	Outline
	V	mA	A	A	kA	kA	μs	℃	℃/W	N/m	kg	
DF212-10	400-1400	10	10	16	0.18	2.30/31	0.5	-40 ~ +150	2.50	0.9-1.1	0.006	RSD1
DF212-16	400-1400	10	16	25	0.25	2.30/50	0.5		1.60	0.9-1.1	0.006	RSD1
DF212-20	400-1400	10	20	31	0.31	2.30/62	0.5		1.20	0.9-1.1	0.006	RSD1
DF222-25	400-1400	15	25	39	0.40	2.30/78	0.5		1.00	1.4-1.8	0.015	RSD2
DF222-32	400-1400	15	32	50	0.50	2.30/98	0.5		0.80	1.4-1.8	0.015	RSD2
DF232-40	400-1400	20	40	62	0.60	2.30/125	0.7		0.60	5.0-6.2	0.027	RSD3
DF232-50	400-1400	20	50	78	0.75	2.30/157	0.7		0.50	5.0-6.2	0.027	RSD3
DF232-63	400-1400	20	63	98	0.95	2.30/198	0.7		0.40	5.0-6.2	0.027	RSD3
DF141-63	400-1400	50	63	100	2.0	2.23/198	1.0, 2.0		0.45	6-10	0.090	RSD4
DF141-60	400-1400	30	80	125	2.5	1.58/250	4.8		0.45	6-10	0.090	RSD4
DF151-125	400-1400	30	125	200	4.0	2.04/390	2.0		0.25	10-20	0.165	RSD5
DF161-160	400-1400	20	160	250	3.5	2.45/500	3.2, 4.0		0.25	20-30	0.250	RSD6
DF161-200	400-1400	20	200	300	4.3	1.85/528	3.2, 4.0		0.25	20-30	0.250	RSD6
DF161-250	400-1400	30	250	390	4.5	2.71/785	3.2, 4.0		0.15	20-30	0.250	RSD6
DF171-320	400-1400	30	320	500	5.3	2.13/1000	5.0, 6.5		0.15	25-35	0.465	RSD7

俄罗斯型雪崩二极管(螺旋式) Russian Type Avalanche Rerctifier Diodes (Stud Version)

Type	V_{RRM}	I_{RRM}	$I_{F(AV)}$ T_C, ℃	$I_{F(RSM)}$	I_{FSM} 10ms	i^2t	V_{FM}/I_{FM}	T_{T0}	PRSM 100mks	r_T	T_{jmax}	$R_{th(j-c)}$	M^2	Wt	Outline
	V	mA	A	A	kA	A^2S10^3	V/A	V	kW	mΩ	℃	℃/W	Nm	kg	
DL212-10	400-1600	6	10	15	0.25	0.31	1.35/31	0.90	2.5	17.5	-40 ~ +150	2.70	0.9-1.1	0.006	RSD1
DL212-16	400-1600	6	16	25	0.27	0.36	1.35/50	0.90	2.5	10.5		1.75	0.9-1.1	0.006	RSD1
DL212-25	400-1600	6	25	39	0.34	0.58	1.35/78	0.90	2.5	6.10		1.10	0.9-1.1	0.006	RSD1
DL222-32	400-1600	8	32	50	0.46	1.06	1.35/100	0.85	3.0	5.00		0.95	1.4-1.8	0.012	RSD2
DL222-40	400-1600	8	40	62	0.55	1.51	1.35/125	0.85	3.0	4.00		0.80	1.4-1.8	0.012	RSD2
DL232-50	400-1600	10	50	78	12	72	1.35/157	0.83	5.0	3.10		0.60	5.0-6.2	0.027	RSD3
DL232-63	400-1600	10	63	98	14	98	1.35/198	0.83	5.0	2.80		0.50	5.0-6.2	0.027	RSD3
DL232-80	400-1600	10	80	125	15	11.25	1.35/250	0.83	5.0	2.10		0.40	5.0-6.2	0.027	RSD3
DL141-100	400-1600	15	100	150	2.2	24	1.35/314	0.95	25	1.60		0.40	6-10	0.090	RSD4
DL151-160	400-1600	15	150	220	4.5	45	1.35/392	0.95	25	1.30		0.30	10-20	0.165	RSD5
DL161-200	400-1600	25	200	300	5.5	100	1.35/600	0.90	16	0.85		0.25	20-30	0.265	RSD6
DL161-250	400-1600	25	250	375	6.4	150	1.35/750	0.90	16	0.75		0.15	20-30	0.265	RSD6
DL171-320	400-1600	25	320	450	7.5	200	1.35/900	0.90	16	0.65		0.13	20-35	0.460	RSD7
DL171-400	400-1600	25	400	600	9.25	280	1.35/1200	0.90	16	0.55		0.095	20-35	0.460	RSD7

俄罗斯型二极管外型 Russian Type Diode Stud Version Outline



俄罗斯型可控硅(螺旋式) Russian Type Thyristors (Stud Version)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls
- Lighting circuits

Ordering information Table

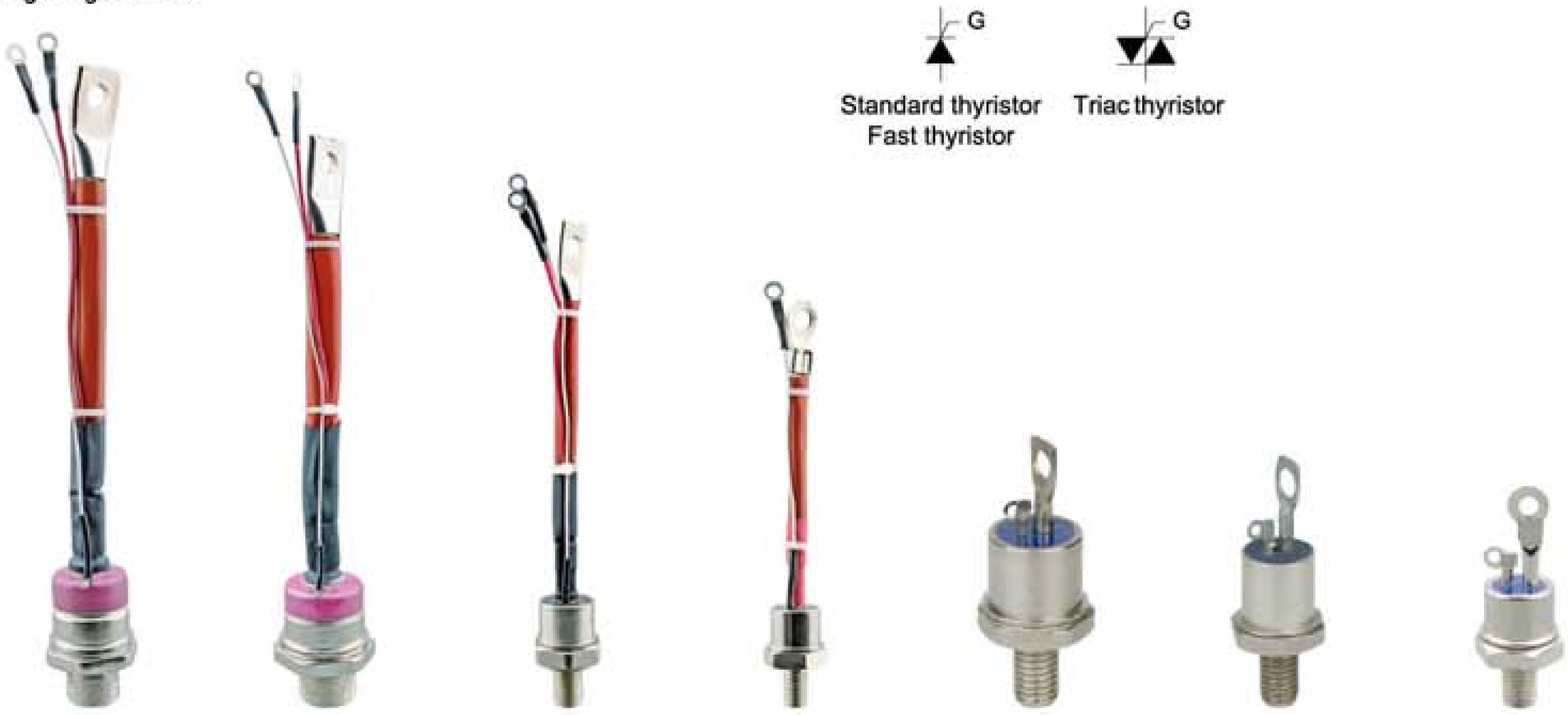
Device Code TC 1 61 - 200 - 16
① ② ③ ④ ⑤

1 T=Phase control thyristor
TB=Fast thyristor TC=Triac thyristor
2 -1=Ceramic device
2=Glass-Metal device
3 -Device outline code
4 -Current code=$IT_{(AV)}$
5 -Voltage code=Code × 100=V_{RRM}

Polarity

Standard thyristor
Fast thyristor

Triac thyristor



俄罗斯型普通可控硅(螺旋式) Russian Type Phase Control Thyristors (Stud Version)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	di/dt	dv/dt	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			T_c55℃		10ms	25℃											
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	N/m	kg	
T212-10	100-1300	3	10	15.7	0.15	1.93/31	125	50-500	3.0	40	5-50		1.80	63	0.9-1.1	0.006	RST1
T212-16	100-1300	3	15	25.2	0.24	1.80/50	125	50-500	3.0	40	5-50		1.50	63	0.9-1.1	0.006	RST1
T222-20	100-1300	3.5	20	31.4	0.30	1.75/63	125	50-500	3.0	60	5-50		0.90	63	1.4-1.8	0.015	RST2
T222-25	100-1300	3.5	25	39.2	0.35	1.75/78	125	50-500	3.0	60	5-50		0.80	63	1.4-1.8	0.015	RST2
T232-25	1200-1600	9	25	30.2	0.33	2.20/78	125	50-500	3.5	100	5-100		0.80	160	5.0-6.2	0.023	RST3
T232-40	100-1300	5	40	62.8	0.75	1.75/125	125	50-500	4.0	100	5-100		0.62	63	5.0-6.2	0.023	RST3
T232-50	100-1300	5	50	70.5	0.80	1.75/157	125	50-500	4.0	100	5-100		0.50	63	5.0-6.2	0.023	RST3
T242-50	1200-1600	15	50	78.5	0.85	2.10/157	125	50-500	3.5	120	5-100	-40 ~ +125	0.40	160	9.0-11	0.050	RST4
T242-63	100-1300	7	63	90.9	1.30	1.65/108	125	50-500	4.0	150	5-100		0.40	63	9.0-11	0.050	RST4
T242-80	100-1300	7	80	125.8	1.50	1.63/250	125	50-500	4.0	150	5-100		0.30	63	9.0-11	0.050	RST4
T151-100	300-1600	15	100	160	2.0	1.80/314	160	200-1000	3.5	200	5-200		0.30	160	10-20	0.165	RST5
T151-125	300-1600	15	125	200	2.5	1.75/392	125	200-1000	3.5	200	5-200		0.15	160	20-30	0.165	RST5
T161-160	300-1800	15	160	260	4.0	1.70/502	125	200-1000	3.5	200	5-200		0.15	160	20-30	0.250	RST6
T161-200	300-1800	15	200	315	5.0	1.80/628	160	200-1000	3.5	200	5-200		0.13	250	20-30	0.250	RST6
T161-250	300-1600	30	250	390	5.0	1.85/780	125	200-1000	3.5	200	5-200		0.10	160	20-30	0.250	RST6
T171-250	300-1800	30	250	393	6.0	1.75/785	125	200-1000	3.5	200	5-200		0.10	160	25-35	0.440	RST7
T171-320	300-1800	30	320	500	8.5	1.60/100S	320	200-1000	3.5	200	5-200		0.85	160	25-35	0.440	RST7

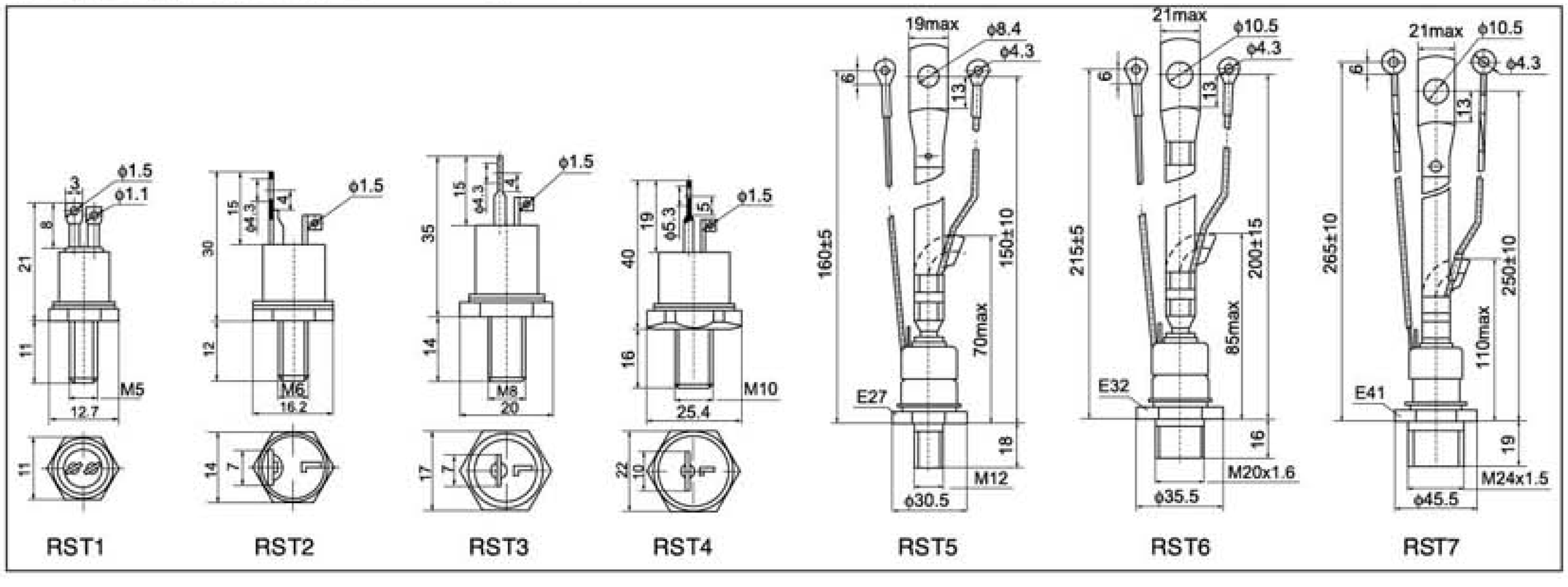
俄罗斯型快速可控硅(螺旋式) Russian Type Fast Thyristors (Stud Version)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			T_c55℃		10ms	25℃											
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	N/m	kg	
TB212-10	400-1400	10	10	16	0.15	2.2/31	200	100-1000	2.0	100	5-50	-40 ~ +125	1.50	12.5, 20, 25, 32	0.9-11	0.006	RST1
TB222-16	400-1400	12	16	25	0.30	2.2/50	200	100-1000	2.0	120	5-50		0.90	12.5, 20, 25, 32	1.5-1.7	0.015	RST2
TB222-20	400-1400	12	20	31	0.35	2.2/62	200	100-1000	2.0	120	5-50		0.80	12.5, 20, 25, 32	1.5-1.7	0.015	RST2
TB232-25	400-1400	15	25	39	0.50	2.2/78	200	100-1000	2.5	170	5-100		0.82	12.5, 20, 25, 32	5.0-8.2	0.023	RST3
TB232-32	400-1400	15	32	50	0.60	2.2/99	200	100-1000	2.5	170	5-100		0.62	12.5, 20, 25, 32	5.0-6.2	0.023	RST3
TB232-40	400-1400	15	40	62	0.75	2.2/125	200	100-1000	2.5	170	5-100		0.50	12.5, 20, 25, 32	5.0-6.2	0.023	RST3
TB242-50	400-1400	20	50	78	1.00	2.2/157	200	100-1000	3.0	200	5-100		0.40	12.5, 20, 25, 32	9.0-1.1	0.050	RST4
TB242-63	400-1400	20	63	98	1.10	2.2/198	200	100-1000	3.0	200	5-100		0.30	12.5, 20, 25, 32	9.0-1.1	0.050	RST4
TB151-80	500-1600	20	80	126	1.6	2.2/250	500	500-1000	3.0	250	5-200		0.25	20, 25, 32, 40	10-20	0.165	RST5
TB151-100	500-1600	20	100	157	2.0	1.8/314	500	500-1000	2.5	250	5-200		0.25	20, 25, 32, 40	10-20	0.165	RST5
TB161-125	500-1600	25	125	198	3.5	2.2/390	500	500-1000	2.5	250	5-200		0.15	20, 25, 32, 40	20-30	0.250	RST6
TB161-160	500-1600	25	160	250	4.0	1.8/500	500	500-1000	2.5	250	5-200		0.15	20, 25, 32, 40	20-30	0.250	RST6
TB171-200	500-1600	35	200	314	6.0	2.2/630	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	RST7
TB171-250	500-1600	35	250	302	7.0	1.8/785	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	RST7
TB171-320	500-1600	35	320	390	8.0	2.2/900	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	RST7

俄罗斯型双向可控硅(螺旋式) Russian Type Triac Thyristors (Stud Version)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	M^2	Wt	Outline
			T_c55℃	10ms	25℃										
	V	mA	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	N/m	kg	
TC212-10	200-1200	3.0	10	0.07	1.85/14	5.0	2.2-25	2.0	3.0	5~50	-40 ~ +125	2.50	0.9-1.1	0.006	RST1
TC212-16	200-1200	3.0	16	0.10	1.85/22	5.0	2.5-25	2.0	3.0	5~50		1.55	0.9-1.1	0.006	RST1
TC222-20	200-1200	3.5	20	0.12	1.85/29	5.0	2.5-50	2.5	3.5	5~50		1.30	1.5-1.7	0.015	RST2
TC222-25	200-1200	3.5	25	0.20	1.80/35	5.0	2.5-50	2.5	3.5	5~50		0.90	1.5-1.7	0.015	RST2
TC232-40	200-1200	5.0	40	0.25	1.85/58	6.3	6.3-100	3.0	4.0	50~100		0.65	5.0-6.2	0.023	RST3
TC232-50	200-1200	5.0	50	0.45	1.80/70	6.3	6.3-100	3.0	4.0	50~100		0.52	5.0-6.2	0.023	RST3
TC242-63	200-1200	7.0	63	0.40	1.80/89	6.3	6.3-100	3.0	5.0	50~100		0.44	9.0-11	0.050	RST4
TC242-80	200-1200	7.0	80	0.50	1.80/113	6.3	6.3-100	3.0	5.0	50~100		0.34	9.0-11	0.050	RST4
TC151-100	200-1200	10	100	1.0	1.65/140	6.3	6.3-100	3.0	300	50~100		0.22	10-20	0.165	RST5
TC151-125	200-1200	10	125	1.2	1.74/180	6.3	6.3-100	3.0	300	50~100		0.22	10-20	0.165	RST5
TC161-160	200-1600	15	160	1.8	1.75/225	6.3	6.3-100	3.0	300	50~200		0.14	20-30	0.250	RST6
TC161-200	200-1600	15	200	2.0	1.60/290	6.3	6.3-100	3.5	300	50~200		0.14	20-30	0.250	RST6
TC171-250	200-1600	25	250	3.0	1.70/350	25	6.3-100	3.5	300	50~200		0.10	25-35	0.440	RST7
TC171-320	200-1600	25	320	3.3	1.50/450	25	6.3-100	3.5	300	50~200		0.10	25-35	0.440	RST7

俄罗斯型螺旋式可控硅外型 Russian Type Thyristor Stud Version Outline



西门康型半导体器件(螺旋式) SEMIKRON Type Semicondctors (Stud Version)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications

- Machine tool controls
- Battey charges
- Conver ters
- Motor controls
- Welder
- Phase control applications in conver ters
- Lighting circuits

Ordering information Table

Device Code SK N 240 / 12
① ② ③ ④

1 - SEMIKRON Type Semiconductor
2 -N=anode to stud (stud reverse polarity)
R=cathode to stud (stud normal polarity)
T=phase control thyristor
3 -Current code=$IT_{(AV)}$ or $IF_{(AV)}$
4 -Voltage code=code × 100=V_{RRM}

Notice: If you need inch size or ceramic type, pls contact LIUJING.

Polarity

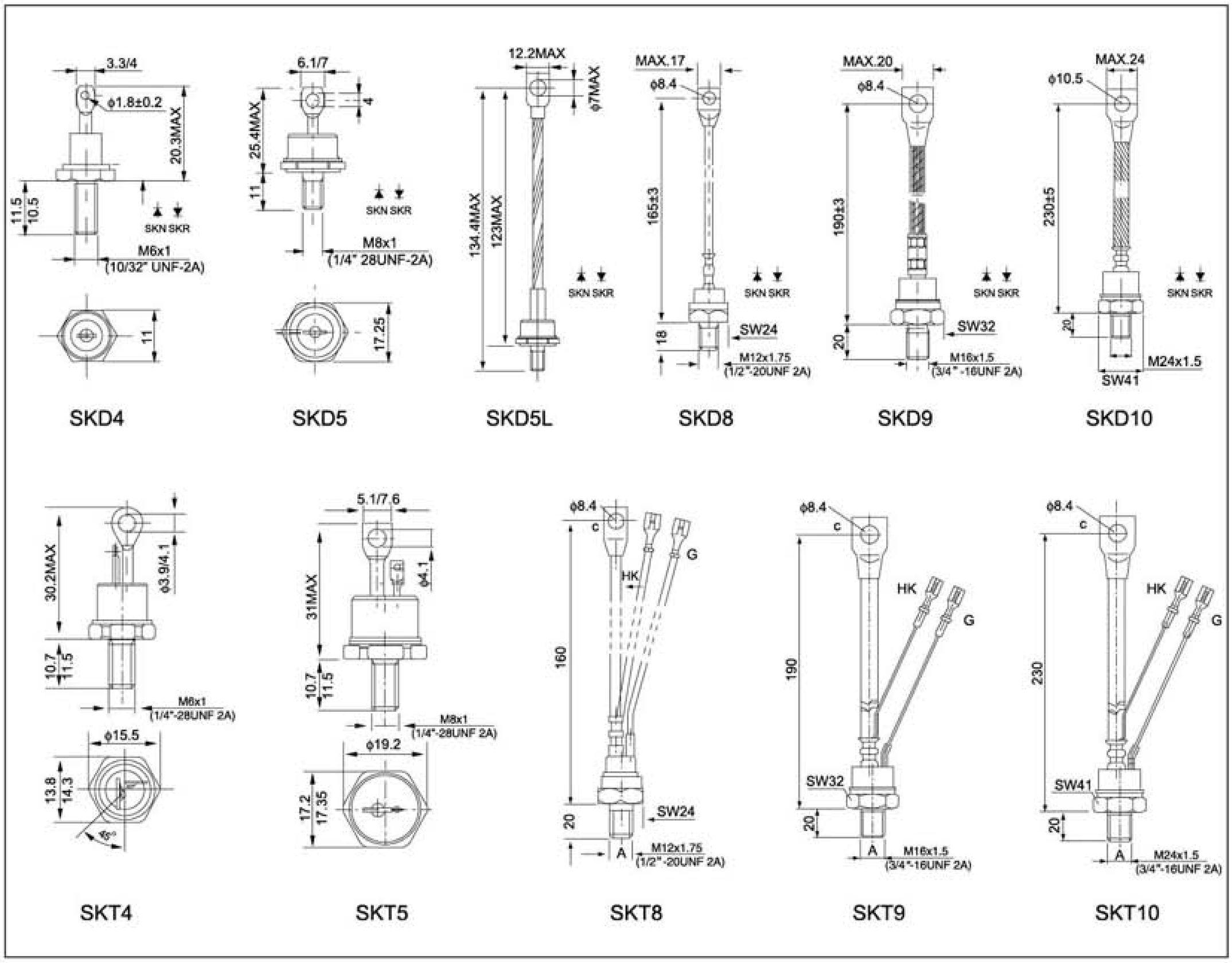
西门康型普通整流二极管(螺旋式) SEMIKRON Type Standard Recovery Diodes (Stud Version)

Type	$IF_{(AV)}$ T_{HS}55℃	V_{FM}/I_{FM} 25℃		$IF_{(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_j	M^2	Wt	Outline
	A	V	A	A	V	mA	℃/W	℃	N/m	kg	
SKN26	25	1.25	75	40	200-1200	≤12	≤1.2		≤1.0	0.010	SKD4
SKR26	25	1.25	75	40	200-1200	≤12	≤1.2		≤1.0	0.010	SKD4
SKN46	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.025	SKD5
SKR46	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.025	SKD5
SKN71	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.025	SKD5
SKR71	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.025	SKD5
SKN45	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.050	SKD5L
SKR45	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.050	SKD5L
SKN70	70	1.45	210	115	200-1600	≤12	≤0.8	-40	≤2.0	0.050	SKD5L
SKR70	70	1.45	210	115	200-1600	≤12	≤0.8	~	≤2.0	0.050	SKD5L
SKN100	100	1.6	300	160	200-1600	≤15	≤0.5	+125	≤12	0.120	SKD8
SKR100	100	1.6	300	160	200-1600	≤15	≤0.5		≤12	0.120	SKD8
SKN130	130	1.5	390	210	200-1600	≤15	≤0.4		≤12	0.120	SKD8
SKR130	130	1.5	390	210	200-1600	≤15	≤0.4		≤12	0.120	SKD8
SKN240	240	1.35	720	400	200-1800	≤15	≤0.2		≤25	0.240	SKD9
SKR240	240	1.35	720	400	200-1800	≤15	≤0.2		≤25	0.240	SKD9
SKN320	320	1.5	960	210	200-1800	≤20	≤0.1		≤30	0.450	SKD10
SKR320	320	1.5	960	210	200-1800	≤20	≤0.1		≤30	0.450	SKD10
SKN400	400	1.6	1200	640	200-2400	≤20	≤0.1		≤30	0.450	SKD10
SKR400	400	1.6	1200	640	200-2400	≤20	≤0.1		≤30	0.450	SKD10

西门康型普通可控硅(螺旋式) SEMIKRON Type Phase Control Thyristors (Stud Version)

Type	$IT_{(AV)}$ T_{HS}55℃	V_{TM}/I_{TM} 25℃		$IT_{(RMS)}$	V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	A	V	A	A	V	mA	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
SKT10	10	1.75	30	16	200-1200	≤10	10-100	≤2.5	≤150	≤200	≥500	≥100		≤1.8	≤2.0	0.016	SKT4
SKT16	16	1.75	48	25	200-1200	≤10	10-100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	0.016	SKT4
SKT24	25	1.7	75	40	200-1200	≤10	10-100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	0.016	SKT4
SKT40	40	1.95	120	64	200-1200	≤12	10-100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.025	SKT5
SKT50	50	1.90	150	80	200-1200	≤12	10-100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.025	SKT5
SKT55	55	1.6	180	90	200-1600	≤15	50-100	≤2.5	≤200	≤400	≥800	≥100	-40	≤0.8	≤12	0.120	SKT8
SKT80	80	1.6	240	128	200-1600	≤15	50-100	≤2.5	≤200	≤400	≥800	≥100	~	≤0.8	≤12	0.120	SKT8
SKT100	100	1.6	300	160	200-1600	≤15	50-100	≤2.5	≤200	≤400	≥800	≥100	+125	≤0.8	≤12	0.120	SKT8
SKT130	130	1.55	390	208	200-1800	≤20	50-100	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤25	0.240	SKT9
SKT160	160	1.75	500	250	200-1800	≤20	50-100	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤25	0.240	SKT9
SKT200	200	1.75	600	320	200-1800	≤20	50-100	≤2.5	≤400	≤600	≥800	≥100		≤0.6	≤25	0.240	SKT9
SKT250	250	1.55	750	450	200-2400	≤30	50-100	≤2.5	≤400	≤600	≥800	≥100		≤0.4	≤30	0.450	SKT10
SKT300	300	1.50	900	500	200-2400	≤30	50-100	≤2.5	20-200	≤400	≥800	≥100		≤0.4	≤30	0.450	SKT10

西门康型螺旋式外型 SEMIKRON Type Stud Version Outline



压配合型二极管(汽车用二极管) Press-fit Diode Series

特性

- 扩散结构
- 低压降
- 低成本
- 高浪涌电流能力

Features

- Diffused junction
- Low leakage
- Low cost
- High surge current capability

典型应用

- 外壳及端子均为紫铜
- 端子容易焊接
- 阴极向外壳: 红色(ZQ3504)
- 阳极向外壳: 黑色(ZQ3504R)

Typical Applications

- Case & terminal:red copper
- Terminal:easy for soldering
- Standard cathode to case red color
- Reverse Anode to case black color

Ordering information Table

Device Code ZQ - 35 06 R A
① ② ③ ④ ⑤

1 -ZQ=LIUJING standard recovery press-fit diode
ZA=LIUJING Avalache press-fit diode
ZS=LIUJING Schottky press-fit diode

2 -Average rectified output current

3 -Voltage code=code x 100=V_{RRM}

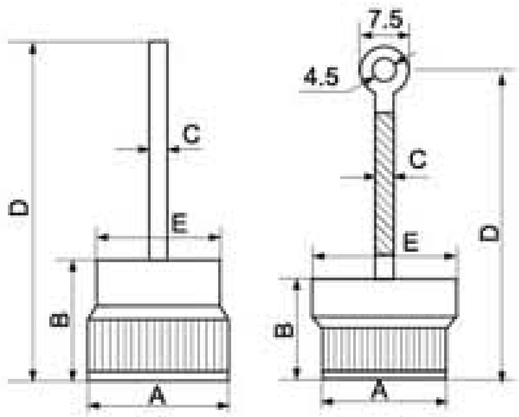
4 -Polarity: None=Standard, Cathode to case, red color
R=Reverse, Anode to case, black or green color

5 -Outline number: None=Bosch type
A=Old standard, soft wire type
B, C, D, E, F, G, H are all un-standard case

*Different size all could custom-design.

Outline Dimension List

Bosch type Min	Bosch type Max	DIM	Standard type Min	Standard type Max
12.90	13.06	A	12.90	13.06
7.70	8.10	B	8.60	9.00
1.25	1.31	C	1.80	2.20
29.10	31.10	D	54.00	56.00
11.10	11.50	E	16.10	16.50



Bosch type Standard type

ZQ ZQ-A

Maximum Ratings and Electrical Characteristics @T_A=25℃ unless otherwise specified

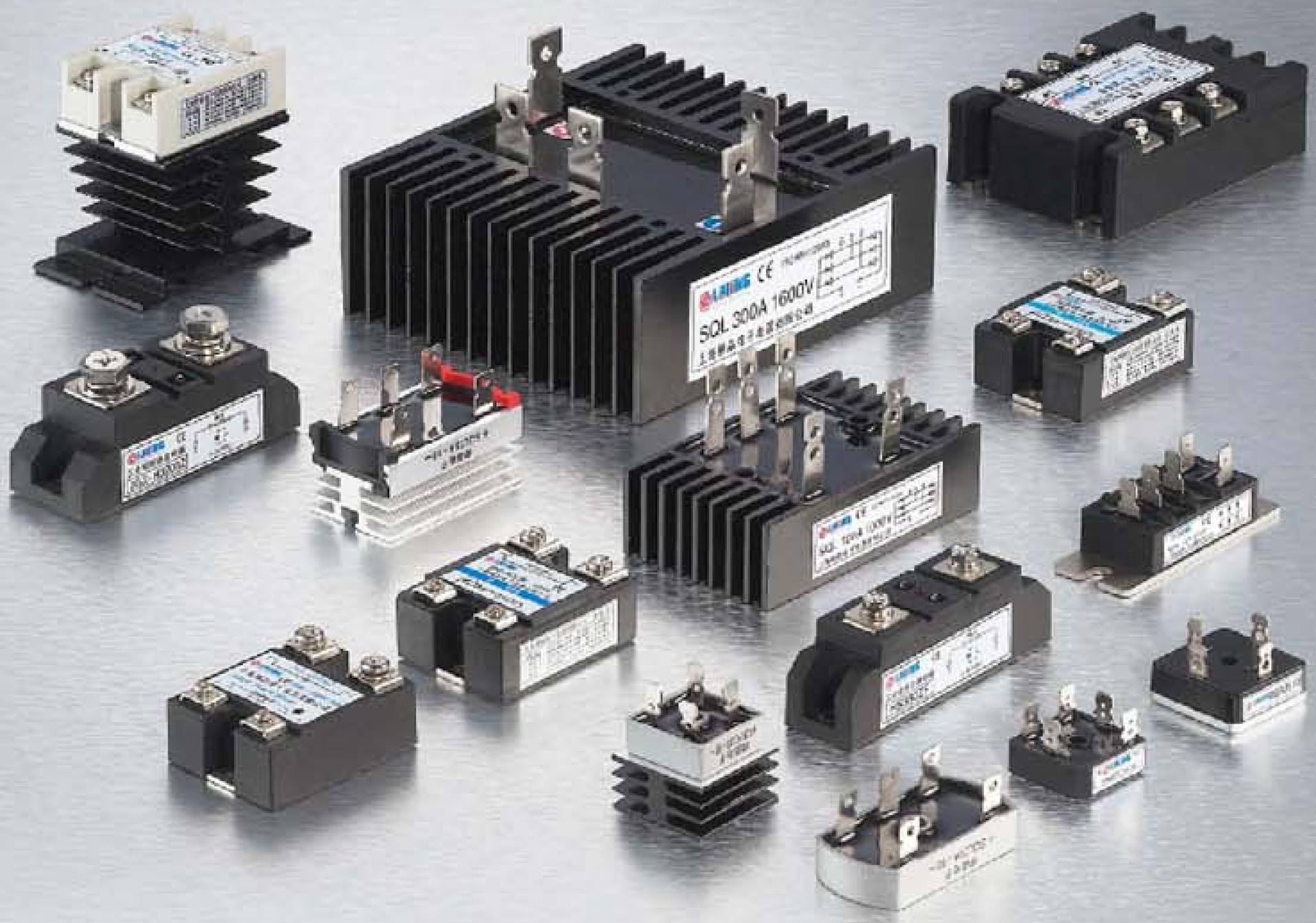
Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	ZQ10A	ZQ15A	ZQ25A	ZQ35A	ZQ50A	Unit
Peak repetitive reverse voltage Working peak reverse voltage DC blocking voltage	V_{RRM} VDC	50~600					V
RMS reverse voltage	VR(RMS)	0.7xV_{RRM}					V
Average rectified output current @TA=150℃	$IF_{(AV)}$	10	15	25	35	50	A
Non-repetitive peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	IFSM	200	300	400	400	500	A
Forward voltage @IF=80A	VFM	1.0	1.0	1.05	1.08	1.1	V
Peak reverse current @TA=25℃ At rated DC blocking voltage @TA=100℃	IRM	5.0 250	5.0 250	5.0 250	5.0 250	5.0 250	μA
Typical junction capacitance (Note 1)	Cj	300					pF
Typical thermal resistance junction to case (Note 2)	R θ JC	1.0					K/W
Operating and storage temperature range	TJ, TSTG	-65 to +175					℃

If need V_{RRM}> 600V or un-standard type, pls contact LIUJING.
*also could make Avalache diode, Schottky diode.

Other off-standard size

ZQ-B ZQ-C ZQ-D ZQ-E ZQ-F ZQ-G ZQ-H



<< 桥式整流器、固态继电器、调压模块、散热器、电子电力芯片

브릿지 다이오드, 고체 계전기, 산열기, 전력 전자 칩

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Electronic Device Chip

桥式整流器 Bridge Rectifiers

特征

- 电流：5-250A
- 电压：100-1600V
- 小型通用尺寸“真空+充氢保护”焊接技术
- 玻璃钝化二极管芯片
- 优秀的力量/体积比率
- 高热的传导性封装

Features

- Current: 5-250A
- Voltage: 100-1600V
- Miniature universal dimensions, welding technique under the protection of vacuum and hydrogen gas
- Glass passivated diode chips
- Excellent force and volume ratio
- High thermal conductive sealing package

典型应用

- 整流电源
- 工业自动化控制
- 数控机械、遥控系统

Typical Applications

- Rectifier current
- Industrial automatic control
- Digital-controlled machine and remte control system

型号说明 Ordering Information Table

Device Code KBPC 35 10
① ② ③

1 -桥式整流器KBPC、QL、GBPC=单相桥，SQL、SKBPC=三相桥
Rectifiers KBPC and QL are single-phase bridge while SQL is three-phase bridge

2 -直流输出电流值I_d
DC output current value

3 -反向重复峰值电压V_{RRM}=标明值 x 100倍
Recurrent Peak Reverse Voltage V_{RRM} is 100 times of indicated value

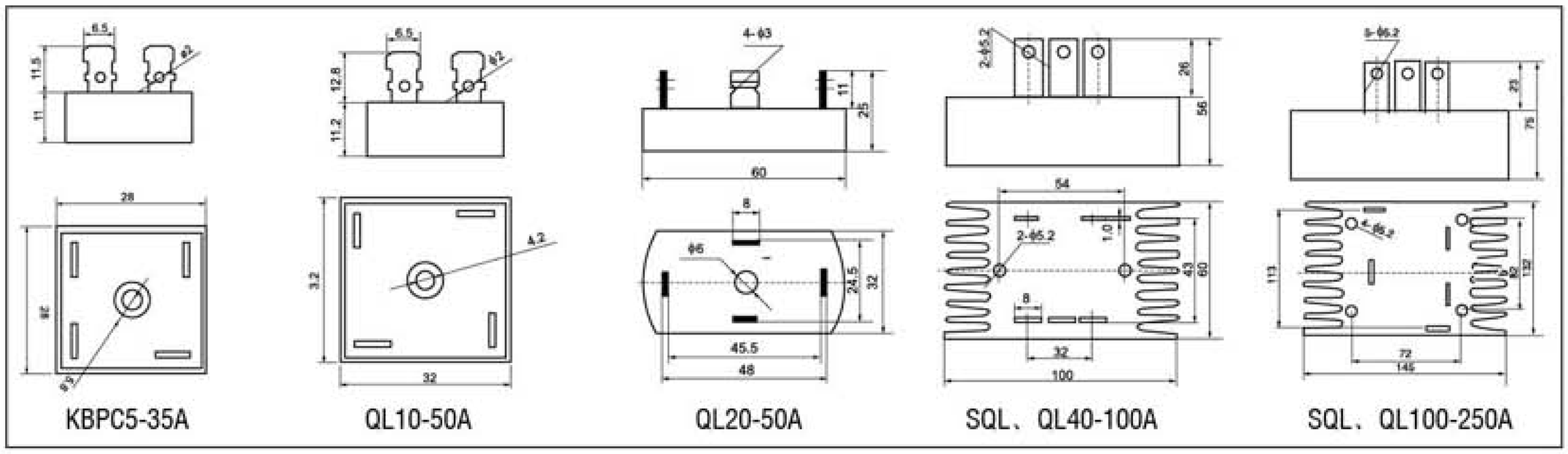
单相桥式整流器特征
Single-phase Bridge Rectifier Characteristics

型号 Type	直流输出电流 I_d A	单相输入正向平均电流 $I_{F(AV)}$ A	反向重复峰值漏电压 V_{RRM} V	反向重复峰值漏电流 I_{RRM} mA	绝缘电压 V_{ISOL} V	外型 Outline
KBPC5A-50A	5~50	2.5~17.5	100~1600	5	2500	28x28x22
GBPC5A-50A	5~50	2.5~17.5	100~1600	5	2500	28x28x22
QL5A-50A	5~50	2.5~25	100~1600	5	2500	32x32x24
QL5A-50A	5~50	2.5~25	100~1600	5	2500	32x60x25
QL40A	40	20	100~1600	7	2500	60x100x55
QL60A	60	30	100~1600	7	2500	60x100x55
QL100A	100	50	100~1600	7	2500	60x100x55
QL150A	150	75	100~1600	10	2500	132x145x75
QL200A	200	100	100~1600	10	2500	132x145x75
QL250A	250	125	100~1600	10	2500	132x145x75
QL300A	300	150	100~1600	10	2500	132x145x75

三相桥式整流器特征
Three-phase Bridge Rectifier Characteristics

型号 Type	直流输出电流 I_d A	三相输入正向平均电流 $I_{F(AV)}$ A	反向重复峰值漏电压 V_{RRM} V	反向重复峰值漏电流 I_{RRM} mA	绝缘电压 V_{ISOL} V	外型 Outline
SKBPC5A-50A	5~50	12	100~1600	7	2500	28x28x22
SQL10A	10	12	100~1600	7	2500	32x60x25
SQL20A	20	16	100~1600	7	2500	32x60x25
SQL40A	40	14	100~1600	7	2500	60x100x55
SQL50A	50	18	100~1600	7	2500	60x100x55
SQL60A	60	20	100~1600	7	2500	60x100x55
SQL100A	100	34	100~1600	7	2500	60x100x55
SQL150A	150	50	100~1600	10	2500	132x145x75
SQL200A	200	67	100~1600	10	2500	132x145x75
SQL250A	250	84	100~1600	10	2500	132x145x75
SQL300A	300	92	100~1600	10	2500	132x145x75

桥式整流器外型 Bridge Rectifier Outline



固态继电器 Solid State Relay

特点

- 电流: 0.5-400A
- 工作电压: 24-440V
- 小型通用尺寸“真空+充气保护”焊接技术
- 内建R/C(MOV)有效吸收处部浪涌电流
- LED发光管指示接通状态
- 更安全的透明保护盖
- 符合IEC国际电工委员会标准
- 多种输入输出选择DC/AC、AC/AC、DC/DC、AC/DC

Features

- Current: 0.5-400A
- Voltage: 24-440V
- All models feature the same compact dimensions to prolide a uniform mounting pitch
- Built-in MOV effectively absorbs extermal surges
- Operation indicaor (red LED) enables monitoring operation
- Protective cover for greater saftey
- Conform to IEC international electrical committee standard
- DC and AC, AC and AC, DC and DC, AC and DC input versions available

Ordering Information Table

Device Code SSR - 1 40 DA
① ② ③ ④

1 -柳晶固态继电器 LIUJING Solid state relay
2 -1=单相 3=三相
3 -负载电流值 Rated operational current
4 -直流控制交流型 DA=DC to AC (DC3-32V)
交流控制交流型 AA=AC to AC
工业级 HD=Industry standard DC/AC
三相固态继电器 3P=3-phase DC/AC

负载电压=标明值x10倍(如48x10=480V)
Rated operational voltage, code × 10(48 × 10=480V)
零控 None=Zero cross trigger
随机控 R=Random switch
外形: 美国快达外形，黑色外壳
Outline: None=crydom type, black cover
1=欧姆龙外形，黑色外壳；1=OMRON type, grey cover

典型应用

- 交直流开关及温度控制
- 工业自动化控制
- 数控机械、遥控系统

Typical Applications

- Universal switch and thermal control
- Industrial automatic control
- Numerial-controlled machinery, remote-control system

SSR-D系列直流控制交流固态继电器 SSR-D Series Solid State Relay (DC-AC)

型号 Type	Rated load current	Operating voltage	Min. ON voltage	Min. OFF voltage	Triggrt current	Load voltage	Black voltage	Voltage drop	Peak current	Leakage current	Turn-on or off time	Insulation voltage	Tj	Outline
	A	V	V	V	12V	V	V	V	A	mA	ms	V	℃	
SSR-1 5DA	5	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	130	3.0	10	2500	-30℃ ~ +80℃	SSR1/2
SSR-1 10DA	10	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	135	3.0	10	2500		
SSR-1 20DA	20	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	270	3.0	10	2500		
SSR-1 25DA	25	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	275	3.0	10	2500		
SSR-1 30DA	30	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	300	3.0	10	2500		
SSR-1 40DA	40	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	410	3.0	10	2500		
SSR-1 50DA	50	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	500	3.0	10	2500		
SSR-1 60DA	60	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	635	3.0	10	2500		
SSR-1 70DA	70	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	700	3.0	10	2500		
SSR-1 75DA	75	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	850	3.0	10	2500		
SSR-1 80DA	80	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	900	3.0	10	2500		
SSR-1 90DA	90	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	990	3.0	10	2500		
SSR-1 100DA	100	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	1100	3.0	10	2500		
SSR-1 120DA	120	3-32	>2.4	<1.0	7.5mA (12V)	240/480	600	2.0	1250	3.0	10	2500		

SSR-HD系列工业级直流控制交流固态继电器 SSR-HD Series Industry Class Solid State Relay (DC-AC)

型号 Type	Rated load current A	Control voltage V	Open current mA	Turn-off voltage V	Load voltage V	Voltage drop V	OFF-state leakage mA	dv/d_t V/μs	Turn-on or off time ms	Frequency range Hz	Insulation voltage V	Tj ℃	Outline
H360ZF	60	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500	-30℃ ~ +80℃	SSR3
H380ZF	80	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3100ZF	100	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3120ZF	120	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3150ZF	150	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		SSR4
H3200ZF	200	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3250ZF	250	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3290ZF	290	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
H3300ZF	300	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	500	10	50/60	2500		
H3350ZF	350	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	500	10	50/60	2500		
H3400ZF	400	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	500	10	50/60	2500		SSR5
H3450ZF	450	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	500	10	50/60	2500		
H3500ZF	500	3-32	6-25	<1.5	90-660	≤1.5	≤3.0	500	10	50/60	2500		

SSR-A系列交流控制交流固态继电器 SSR-A Series Solid State Relay (AC to AC)

型号 Type	Rated Load current A	Operating voltage V	Min.on voltage V	Min.off voltage V	Triggrt current mA	Load voltage V	Block voltage V	Voltage drop V	Peak current A	Leakage current mA	Turn-on or off time ms	Insulation voltage V	Tj ℃	Outline
SSR-1 10AA	10	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	135	3.0	20	2500	-30℃ ~ +80℃	SSR1/2
SSR-1 20AA	20	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	200	3.0	20	2500		
SSR-1 25AA	25	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	275	3.0	20	2500		
SSR-1 40AA	40	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	410	3.0	20	2500		
SSR-1 60AA	60	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	500	3.0	20	2500		
SSR-1 80AA	80	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	610	3.0	20	2500		
SSR-1 100AA	100	90~280	>50	<45	8.0(<110V)	24-240	600	2.0	725	3.0	20	2500		

SSR-DD系列直流控制直流固态继电器 SSR-DD Series Solid State Relay (DC to DC)

型号 Type	Rated Load current A	Control voltage V	Control current mA	Load voltage V	Leakage current mA	Turn on time ms	Turn off time ms	Insulation voltage V	Tj ℃	Outline
SSR-1 10DD	10	3~32	5~50	5~220	≤1	≤0.15	≤0.8	2500	-30℃ ~ +80℃	SSR1/2
SSR-1 20DD	20	3~32	5~50	5~220	≤1	≤0.15	≤0.8	2500		
SSR-1 25DD	25	3~32	5~50	5~220	≤1	≤0.15	≤0.8	2500		
SSR-1 40DD	40	3~32	5~50	5~220	≤1	≤0.15	≤0.8	2500		

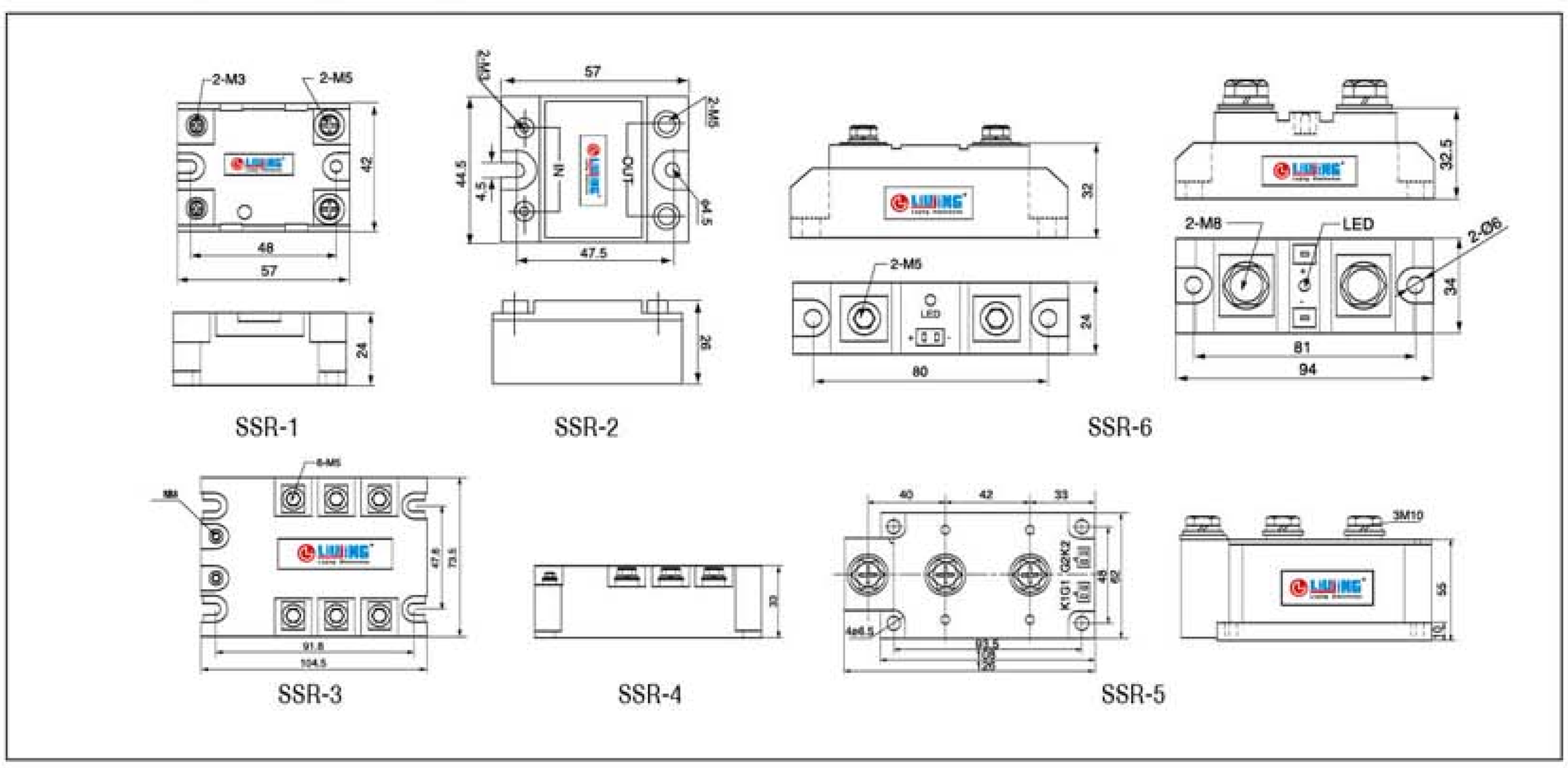
SSR-3P系列三相直流控制交流固态继电器 SSR-3P Series Three Phases Solid State Relay (DC-AC)

型号 Type	Rated Load current A	Control voltage V	Open current mA	Turn-off voltage V	Load voltage V	Voltage drop V	Off-state leakage mA	dv/dt V/μs	Turn-on or off time ms	Frequenty range Hz	Insulation voltage V	Tj ℃	Outline
SSR-3 10DA	10	4~32	8-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500	-30℃ ~ +80℃	SSR6
SSR-3 25DA	25	4~32	8-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 40DA	40	4~32	8-25	<1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 60DA	60	4~32	8-25	< 1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 75DA	75	4~32	8-25	< 1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 80DA	80	4~32	8-25	< 1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 90DA	90	4~32	8-25	< 1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		
SSR-3 10DA	100	4~32	8-25	< 1.5	90-660	≤1.5	≤3.0	200	10	50/60	2500		

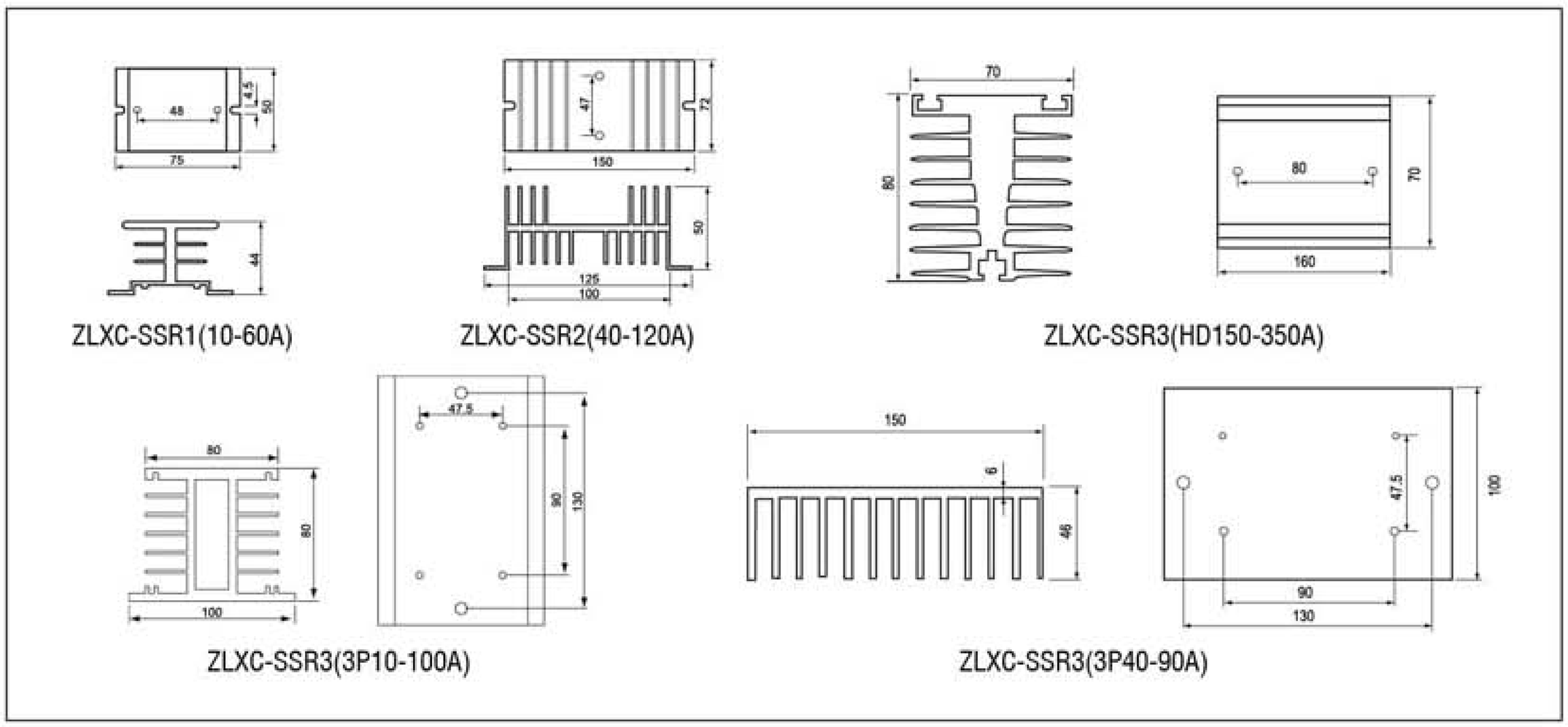
SSR-V系列固态调压器 SSR-V Series Solid State Voltage Regulator

型号 Type	Rated Load current A	Variable resistance KΩ	Operating voltage V	Block voltage V	Voltage drop V	Peak current A	Leakage current mA	Dielectric strength V	Peak current A	Insulation sttength MΩ/VDC	Tj ℃	Outline
SSVR 10A	10	0~470	24~380	600	2.0	135	5.0	2500	135	50/500	-30℃ ~ +80℃	SSR1/2
SSVR 25A	25	0~470	24~380	600	2.0	275	5.0	2500	275	50/500		
SSVR 40A	40	0~470	24~380	600	2.0	410	5.0	2500	410	50/500		
SSVR 10A	10	0~560	24~380	600	2.0	135	5.0	2500	135	50/500		
SSVR 25A	25	0~560	24~380	600	2.0	275	5.0	2500	275	50/500		
SSVR 40A	40	0~560	24~380	600	2.0	410	5.0	2500	410	50/500		

Solid State Relay Outline 固态继电器外形图



Solid State Relay Heatsink 固态继电器用散热器



全隔离单相交流调压模块(DTY) Single-phase AC Voltage-regulation Modules

隔离单相交流全调压模块(以下简称单相调压模块 DTY) 集是同步变压器、相位检测电路、移相触发电路和输出可控硅于一体，当改变控制电压的大小， 就可改变输出可控硅的触发相角， 即实现单相交流电的调压。根据输出可控硅器件不同分一只双向可控硅的普通型， 只两单向可控硅反并联的增强型和一只单向可控硅的半波型等三类。按单相交流负载的额定电压分 20V 和830V两类，按控制信号的不同分E、F、G、H型等四类，以下为规格型号表：（注：电流等级为模块内部可控硅最大电流有效值）

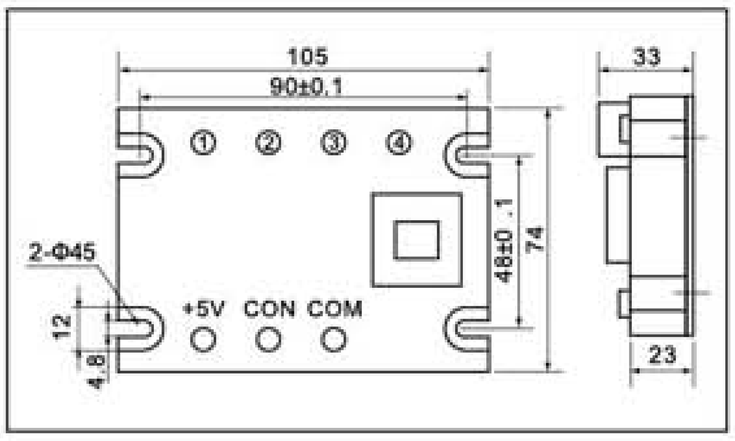
			CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
增强型	负载220V	10A	DTY-H220D10E	DTY-H220D10F	DTY-H220D10G	DTY-H220D10H
		40A	DTY-H220D40E	DTY-H220D40F	DTY-H220D40G	DTY-H220D40H
		80A	DTY-H220D80E	DTY-H220D80F	DTY-H220D80G	DTY-H220D80H
		120A	DTY-H220D120E	DTY-H220D120F	DTY-H220D120G	DTY-H220D120H
		160A	DTY-H220D160E	DTY-H220D160F	DTY-H220D160G	DTY-H220D160H
		200A	DTY-H220D200E	DTY-H220D200F	DTY-H220D200G	DTY-H220D200H
		250A	DTY-H220D250E	DTY-H220D250F	DTY-H220D250G	DTY-H220D250H
		300A	DTY-H220D300E	DTY-H220D300F	DTY-H220D300G	DTY-H220D300H
	负载380V	10A	DTY-H380D10E	DTY-H380D10F	DTY-H380D10G	DTY-H380D10H
		40A	DTY-H380D40E	DTY-H380D40F	DTY-H380D40G	DTY-H380D40H
		80A	DTY-H380D80E	DTY-H380D80F	DTY-H380D80G	DTY-H380D80H
		120A	DTY-H380D120E	DTY-H380D120F	DTY-H380D120G	DTY-H380D120H
		160A	DTY-H380D160E	DTY-H380D160F	DTY-H380D160G	DTY-H380D160H
		200A	DTY-H380D200E	DTY-H380D200F	DTY-H380D200G	DTY-H380D200H
		250A	DTY-H380D250E	DTY-H380D250F	DTY-H380D250G	DTY-H380D250H
		300A	DTY-H380D300E	DTY-H380D300F	DTY-H380D300G	DTY-H380D300H
半波型	负载220V	10A	DTY-220D10XE	DTY-220D10XF	DTY-220D10XG	DTY-220D10XH
		25A	DTY-220D25XE	DTY-220D25XF	DTY-220D25XG	DTY-220D25XH
		50A	DTY-220D50XE	DTY-220D50XF	DTY-220D50XG	DTY-220D50XH
	负载380V	10A	DTY-380D10XE	DTY-380D10XF	DTY-380D10XG	DTY-380D10XH
		25A	DTY-380D25XE	DTY-380D25XF	DTY-380D25XG	DTY-380D25XH
		50A	DTY-380D50XE	DTY-380D50XF	DTY-380D50XG	DTY-380D50XH

为方便说明，下面以0-5V控制信号为标准作介绍(型号简称DTY):

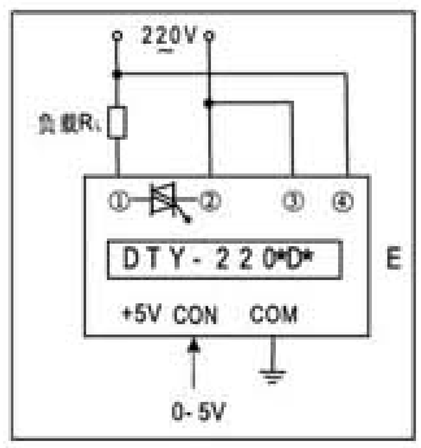
②为输出端 ，①即模块内部可控硅的两极，增强型和普通型的①②端无极性，半波型模块内部单向可控硅的阳极接①端，阴极接②端。

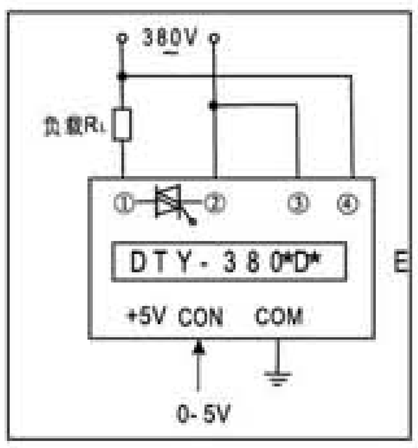
④为模块内③部同步变压器初级，分220Vac和380Vac两种规格：220Vac规格的模块允许使用在165-240Vac范围的电网上，380Vac规格的模块允许使用在285-420Vac的电网上，③④不分极性。

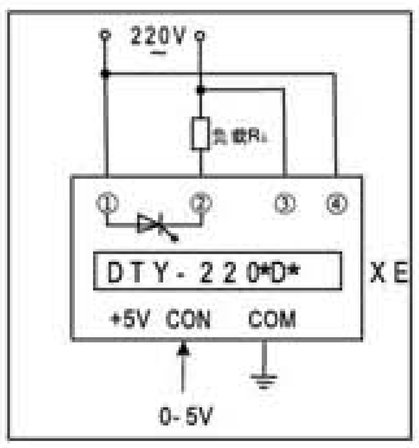
OM分内部地C端，CON为控制端，+5V为内部产生，只供电位器手动控制用。①②③④的强电部分和+5V、CON、COM的弱电部分为全隔离。应用电路如下所示:

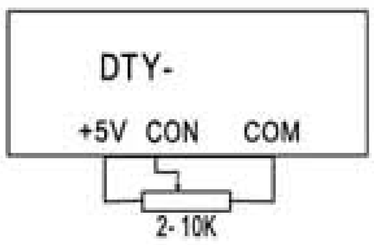


a. 220Vac电网自动控制电路图　b. 380Vac电网自动控制电路图　c.单相半波调压模块自动控制电路图　d.手动控制电路图







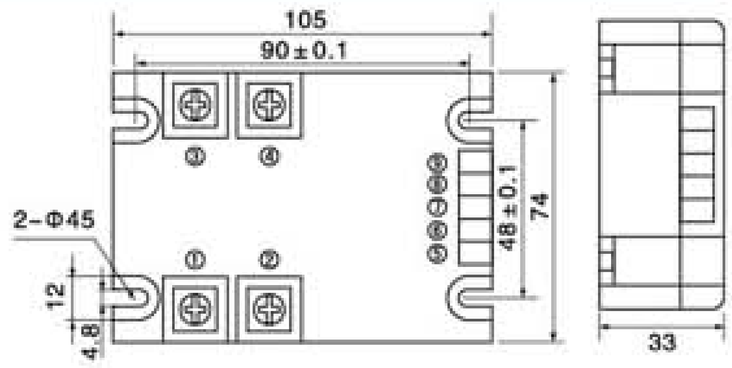


E、F、H型手动控制方式，G型不能用电位器调节。

全隔离单相桥式全控整流模块(DQZ) Single-phase Bridge contorl rectified modules

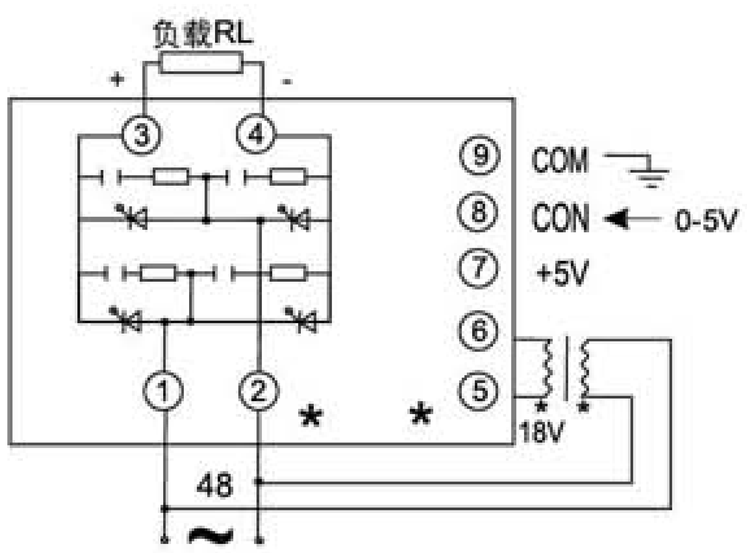
全隔离单相桥式全控整流模块(以下简称单相整流模块DQZ)内部集四只单向可控硅组成的全控桥、移相电路和触发电路于一体，在外部提供交流同步电压(18VAC)下，便可以自动控制或外接电位器手动控制，达到改变四只单向可控硅的导通角即可方便地实现单相交流电直接转换成幅值无级可调的脉动直流电压。

单相整流模块DQZ根 据单相交流电网电压分380V(可应用180-450VAC)、220V(可应用120-250VAC)、110V(可应用50-120VAC)、36V(可应用20-50VAC)四大系列；根据控制信号的不同分E、F、G、H等四类。



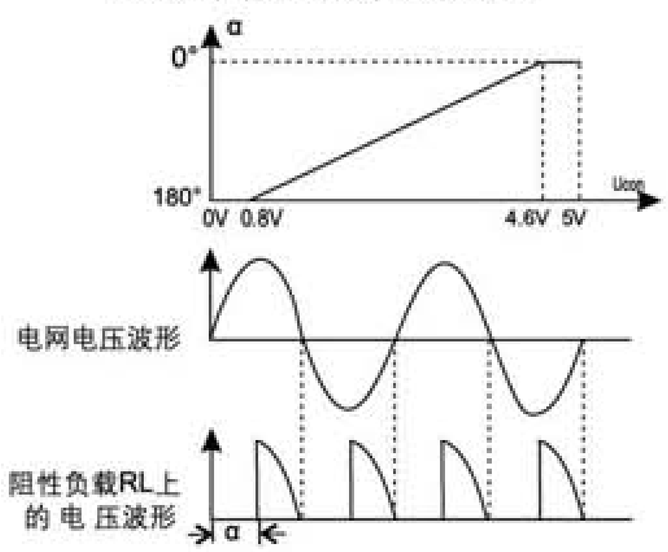
		CON0-5V: E型	CON0-10V: F型	CON4-20mA: G型	CON1-5V: H型
380V系列	15A	DQZ-380D15E	DQZ-380D15F	DQZ-380D15G	DQZ-380D15H
	35A	DQZ-380D35E	DQZ-380D35F	DQZ-380D35G	DQZ-380D35H
	75A	DQZ-380D75E	DQZ-380D75F	DQZ-380D75G	DQZ-380D75H
	120A	DQZ-380D120E	DQZ-380D120F	DQZ-380D120G	DQZ-380D120H
	150A	DQZ-380D150E	DQZ-380D150F	DQZ-380D150G	DQZ-380D150H
	190A	DQZ-380D190E	DQZ-380D190F	DQZ-380D190G	DQZ-380D190H
220V系列	15A	DQZ-220D15E	DQZ-220D15F	DQZ-220D15G	DQZ-220D15H
	35A	DQZ-220D35E	DQZ-220D35F	DQZ-220D35G	DQZ-220D35H
	75A	DQZ-220D75E	DQZ-220D75F	DQZ-220D75G	DQZ-220D75H
	120A	DQZ-220D120E	DQZ-220D120F	DQZ-220D120G	DQZ-220D120H
	150A	DQZ-220D150E	DQZ-220D150F	DQZ-220D150G	DQZ-220D150H
	190A	DQZ-220D190E	DQZ-220D190F	DQZ-220D190G	DQZ-220D190H
110系列	15A	DQZ-110D15E	DQZ-110D15F	DQZ-110D15G	DQZ-110D15H
	35A	DQZ-110D35E	DQZ-110D35F	DQZ-110D35G	DQZ-110D35H
	75A	DQZ-110D75E	DQZ-110D75F	DQZ-110D75G	DQZ-110D75H
	120A	DQZ-110D120E	DQZ-110D120F	DQZ-110D120G	DQZ-110D120H
	150A	DQZ-110D150E	DQZ-110D150F	DQZ-110D150G	DQZ-110D150H
	190A	DQZ-110D190E	DQZ-110D190F	DQZ-110D190G	DQZ-110D190H
36系列	15A	DQZ-36D15E	DQZ-36D15F	DQZ-36D15G	DQZ-36D15H
	35A	DQZ-36D35E	DQZ-36D35F	DQZ-36D35G	DQZ-36D35H
	75A	DQZ-36D75E	DQZ-36D75F	DQZ-36D75G	DQZ-36D75H
	120A	DQZ-36D120E	DQZ-36D120F	DQZ-36D120G	DQZ-36D120H
	150A	DQZ-36D150E	DQZ-36D150F	DQZ-36D150G	DQZ-36D150H
	190A	DQZ-36D190E	DQZ-36D190F	DQZ-36D190G	DQZ-36D190H

注：以上电流等级为模块输出电流最大有效值。为方便说明，下面以0-5V控制信号为标准作介绍。



E、F、H型手动控制方式，
G型不能用电位器调节。

控制电压Ucon与可控硅输出导通角α关系曲线（阻性负载）及波形图。



①②为交流电源进线端，电压等级分380VAC、220VAC、110VAC和36VAC。
③④为直流输出正负端。
⑤⑥为同步电压输入端，允许输入与①②交流电源同步的幅值为18±5VAC的电压，⑤与②为同名端。
⑦⑧⑨分别为+5V、CON和COM，其中+5V为模块内部产生，只供电位器手动控制用，CON为控制端，COM为内部地端。其中①②③④的强电部分与⑤⑥⑦⑧⑨的弱电部分为全隔离。

全隔离三相一体化交流调压模块(STY) Three-phase AC Voltage-regulation modules

隔离三相交全流调压模块(以下简称三相调压模块STY)内部集三相电相位检测、移相电路、触发电路和三组反并联单向可控硅于一体，不需外部任何电路和工作电源，便可以自动控制或外接电位器手动控制，达到改变可控硅导通角即可实现三相负载电压从0V到电网全电压的无级可调。

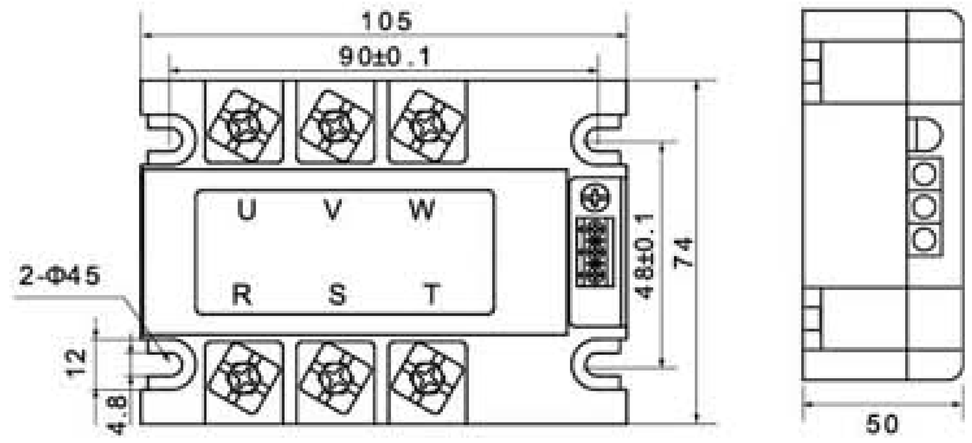
三相调压模块STY原则上应用于380VA、50Hz的三相电网上，根据控制信号的不同分E、F、G、H型等四类，以下为型号表。

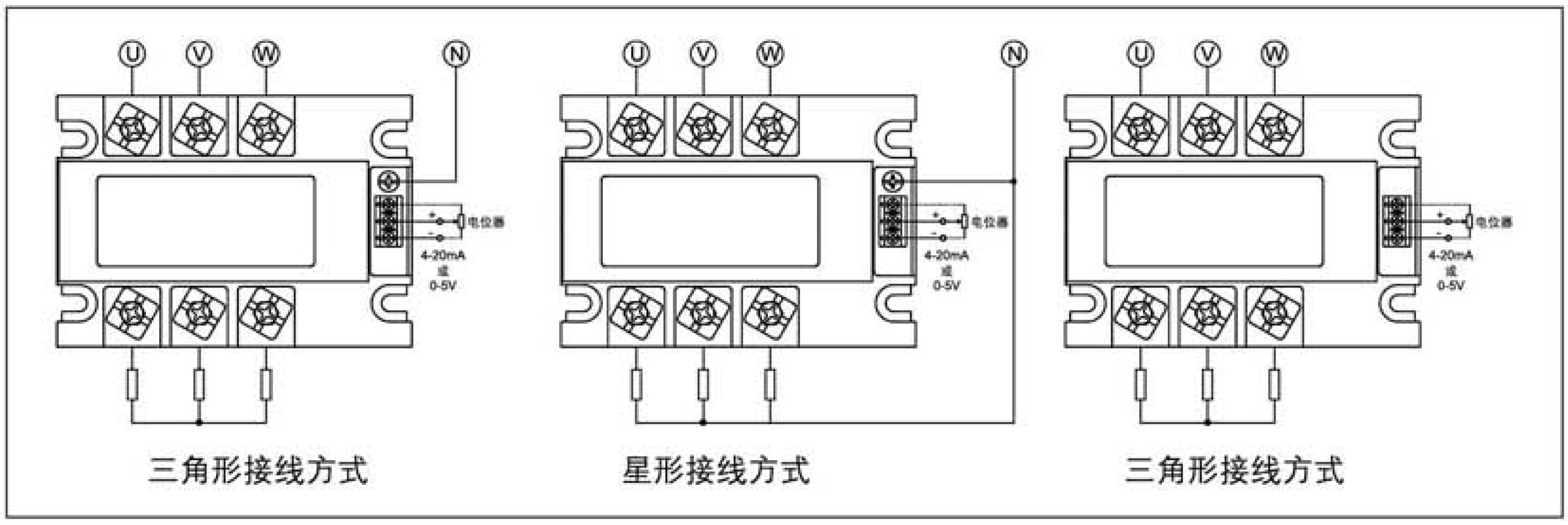
	CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
35A	STY-380D35E	STY-380D35F	STY-380D35G	STY-380D35H
75A	STY-380D75E	STY-380D75F	STY-380D75G	STY-380D75H
120A	STY-380D120E	STY-380D120F	STY-380D120G	STY-380D120H
150A	STY-380D150E	STY-380D150F	STY-380D150G	STY-380D150H

注：以上电流等级为模块内部一组反并联可控硅电流最大有效值

为方便说明，下面以0-5V控制信号为标准作介绍(型号简称STY)。

三相调压模块U、V、W、N上接电网L1、L2、L3、N(无相序要求，R、S、T接三相负载(Y、△接法均可)。+5V端为内部产生，只供电位器手动控制用，CON为控制端，COM为模块内部地。其中U、V、W、N、R、S、T强电部分与COM、CON、+5V弱电部分为全隔离。应用电路及手动控制:





单相移相触发器模块 Single-Phase-shift Trigger

移相触发器是为方便地调节单相交流电压而研制的。这个系列有共同的部分：在同步电压作用下(此同步电压还作为模块的工作电源)，经同步相位检测、移相、触发，便可以自动控制或电位器手动控制，产生180°－0°可移相的触发信号，去触发相应的器件以达到移相调压的目的。

以下为规格(型号表):

CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
SSR-JKWKE	SSR-JKWKF	SSR-JKWKG	SSR-JKWKH

为方便说明，下面以0-5V控制信号为标准作介绍(型号简称SSR-JKWK)

随机型固态继电器移相触发器模块(SSR-JKWK)

随机型单相交流固态继电器具有直流控制端施加控制信号，交流输出端便立即导通的性能，因此当控制信号为与交流电网同步的可移相的脉冲信号时，负载端便可以实现从180°到0°范围内电压的平稳调节。随机型SSR的移相触发器模块(以下简称移相触发器) 是正为了方便地应用随机型 SR 调来节交流负载电压而专门设计的。移相触发器的功能是根据控制电压的大小，输出端产生与电网电压同步的双倍电网频 率的从180°到0°范围内移相的宽脉冲，用以驱动随机型SSR，从而达到移相调压的目的。

可控硅移相触发器摸块(SCR-JKK、TRIAC-JKK)

可控硅移相触发器模块分单向可控硅移相触发器模块S(CR-JKK) 双和向可控硅移相触发器模块(TRIAC-JKK)。

可控硅移相触发器模块的原理是：以电网相位为同步，当改变控制电压的大小，内部便产生相对电网电压180°-0°的触发脉冲，通过光电隔离，输出端(A、G)便触发相应的可控硅导通，从而达到移相调压的目的。

移相触发器的控制部分由于同输出触发端光电隔离，因而可以用手动或自动两种控制方式。在应用中只需提供18V的电网同步电压，电极以插片连接，使用极为方便。

随机型SSR移相触发器的引脚功能:

①、②脚接同步变压器副边绕组(18Vac)，供给模块电源和同步基准;

③脚接可控硅的触发门极;

④脚接单向可控硅的阳极或双向可控硅的主电极T1:

⑤脚为内部地，当移相触发器由外电路自动控制时，与外电路地相连;

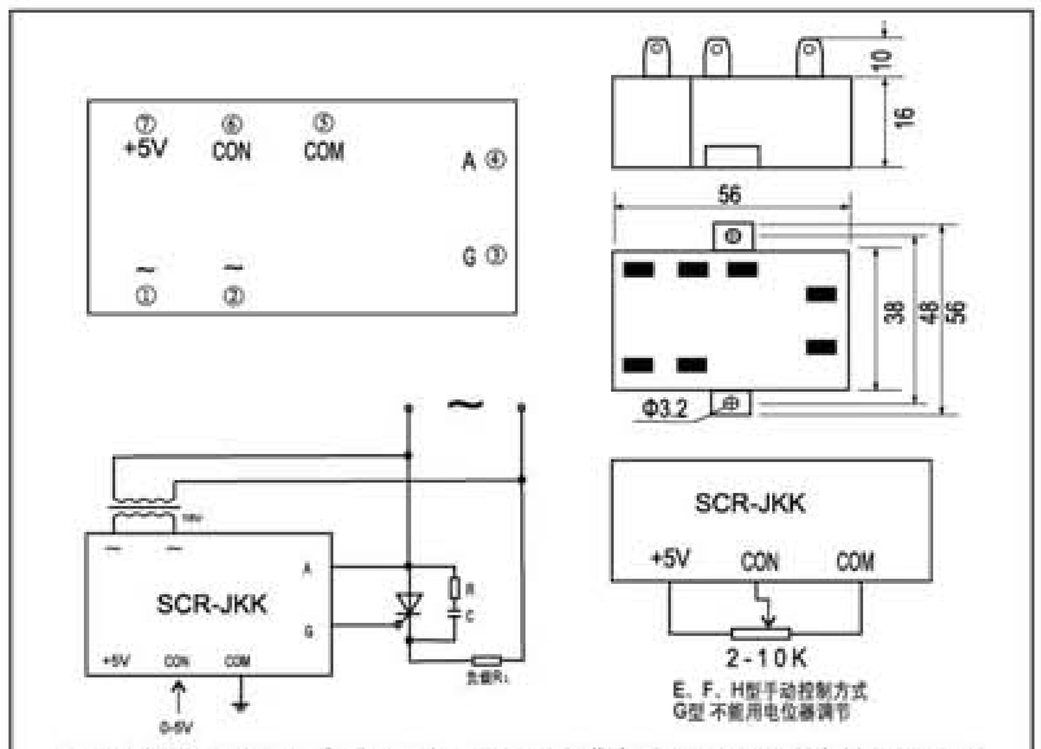
⑥脚为控制端，当⑥脚有0.5V的电压信号时，③④控 制脚触发的可控硅便在180°-0°范围内移相导通。

⑦脚为模块内部产生的+5V端，当⑤⑥⑦脚外接电位器手动控制时，⑦脚提供电源，当外电路自动控制时，脚 悬⑦空。

SCR-JKK和TRIAC-JKK按控制信号不同，分为以下规格(型号表):

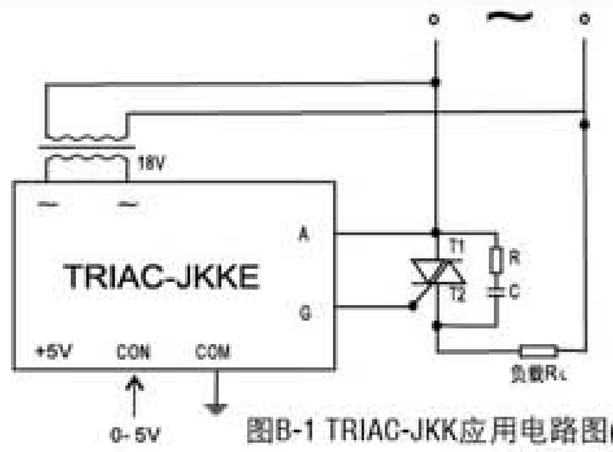
CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
SCR-JKKE	SCR-JKKF	SCR-JKKG	SCR-JKKH
TRIAC-JKKE	TRIAC-JKKF	TRIAC-JKKG	TRIAC-JKKH

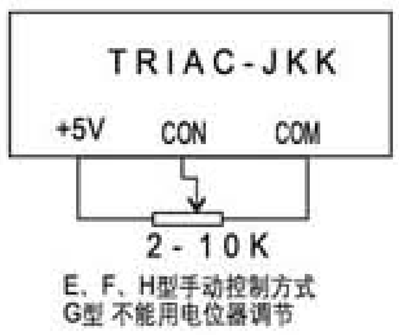
为方便说明，下面以0~5V控制信号为标准作介绍(型号简称SCR-JKK和TRIAC-JKK)



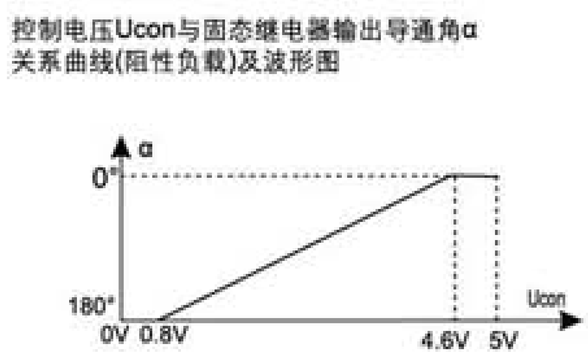
图B-1 SCR-JKK应用电路图(注：图B-1改进电路图见(四-D)中的图D-B-1)

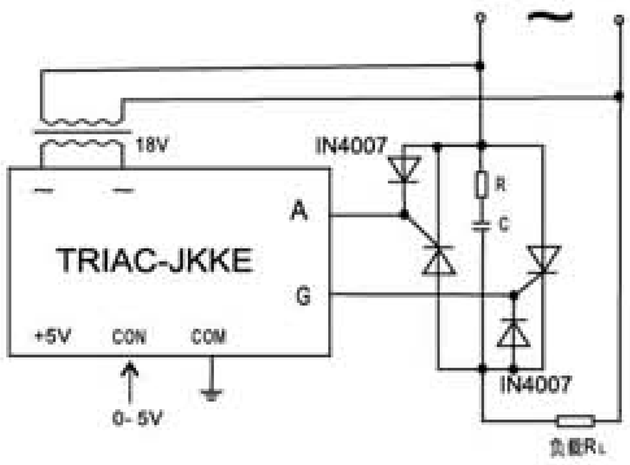
应用电路

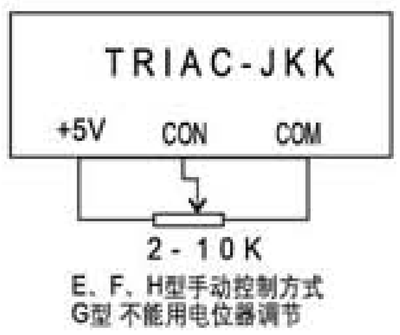


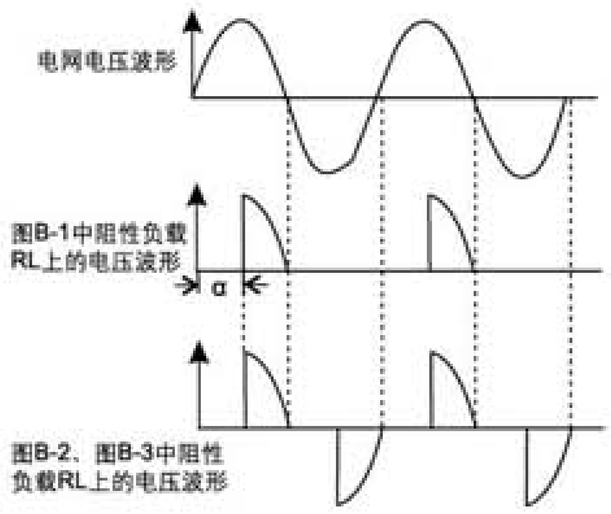


图B-1 TRIAC-JKK应用电路图(一) (注：图B-2改进电路图见(四-D)中的图D-B-2)



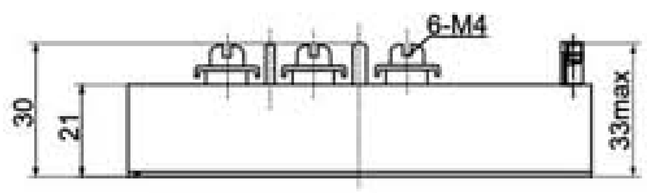


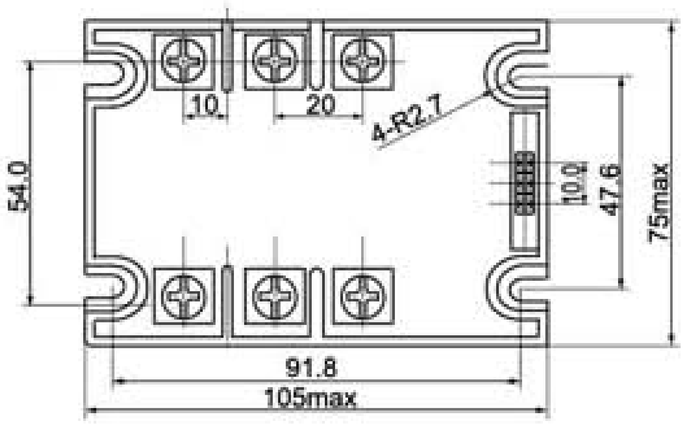


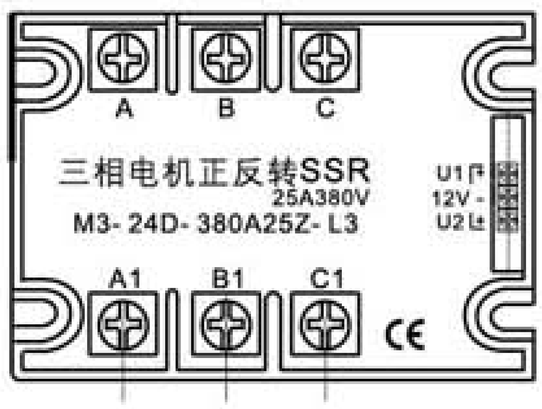


图B-1 TRIAC-JKK应用电路图(二) (注：图B-1改进电路图见(四-D)中的图D-B-1)

三相电机正反转电机控制型固态继电器

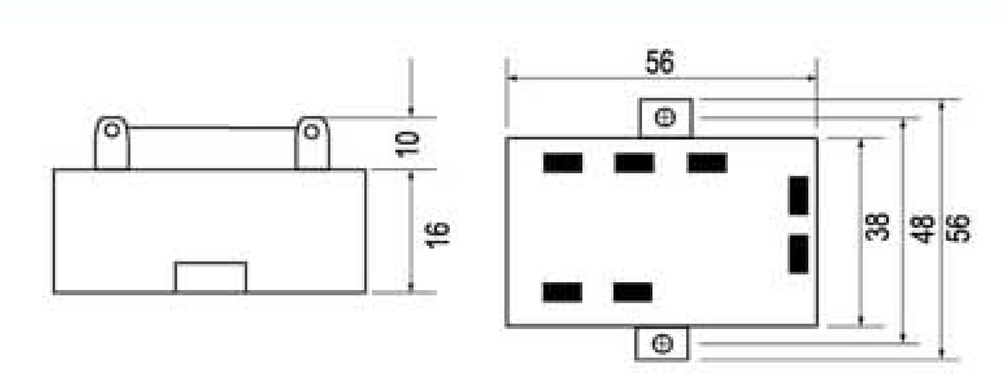






单相双路可控硅移相触发器模块(SCR-JKK/2)

单相双路可控硅移相触发器模块 S(CR-JKK/2)的原理是在前述的SCR-JKK基础上增加了一路负半周的可控硅触发信号，以实现单相电路中对两只单相可控硅的正负半周同时移相调节，除此以外均同SCR-JKK。

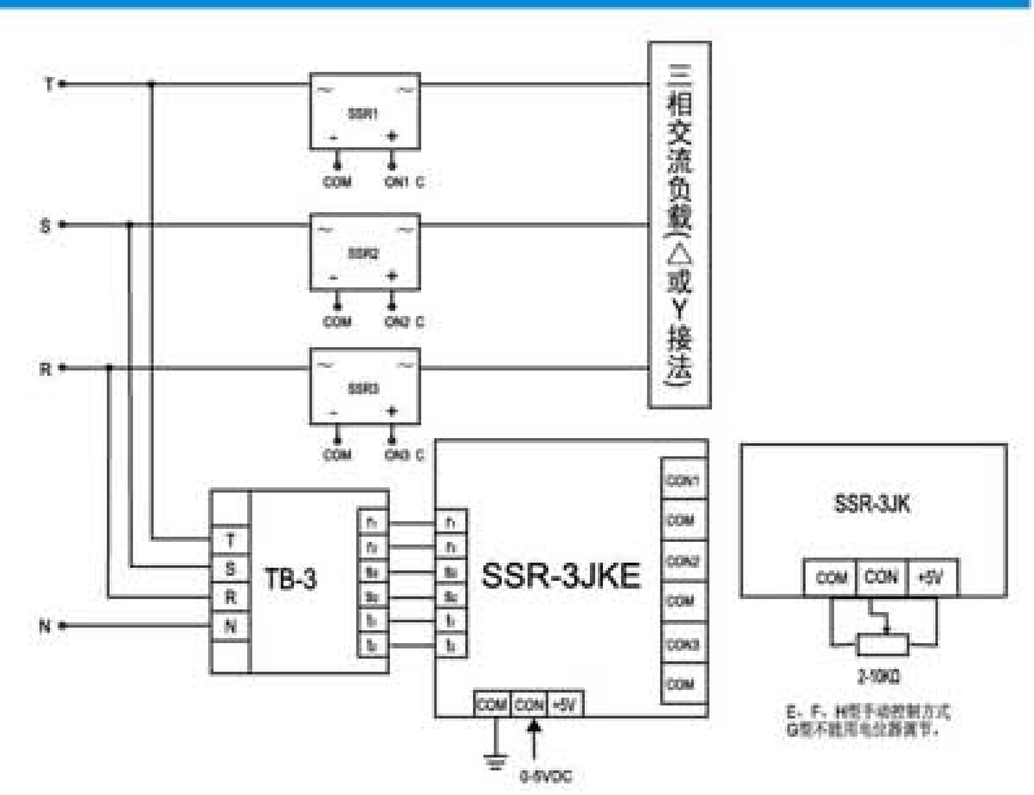


SCR-JKK/2控制信号不同，分为以下规格(型号表):

CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
SCR-JKKE/2	SCR-JKK/2F	SCR-JKK/2G	SCR-JKK2H

固态继电器三相移相触发器模块(SRR-3JK)

固态继电器三相移相触发器模块(以下简称SSR-3JK)内部集三相电相位检测、移相电路、控制电路和三路单相随机型固态继电器触发电路于一体，在由我公司提供的三相同步变压器模块(型号为TB—3)的支持下，不需外部任何电路或工作电源，便可以自动控制或电位器手动控制，产生三路可改变导通角度的脉冲信号再去分别控制三路单相随机型固态继电器，即可实现三相负载电压从0V到电网全电压的无级可调。



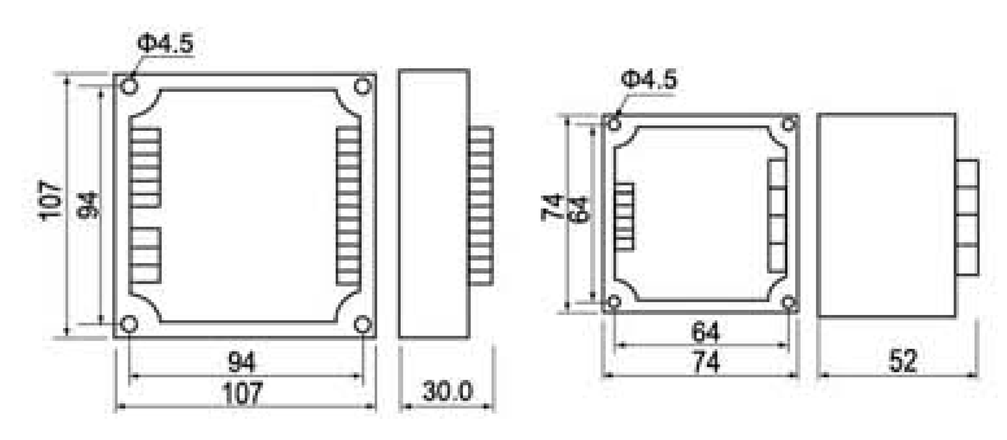
控制信号的不按同，SSR-3JK分E、F、G和H型等四类，以下为规格型号表。

CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
SSR-3JKE	SSR-3JKF	SSR-3JKG	SSR-3JKH

三相移相触发器模块

三相触发器模块系列内部集三相电相位检测、移相电路、控制电路和触发电路于一体，在我公司提供的三相同步变压器模块支持下，不需外部任何电路或工作电源，便可以自动控制或电位器手动控制，达到输出多路导通角可改变的可控硅强触发脉冲，去触发相应器件以实现移相调压的目的。

三相触发器模块系列分三相调压单硅移相触发器模块(SX-JKA)、三相调压双硅移相触发器模块(SX-JKT)、三相全控整流移相触发器模块(SX-JKZ)和三相半控整流移相触发器模块(SX-JKB)等四种。

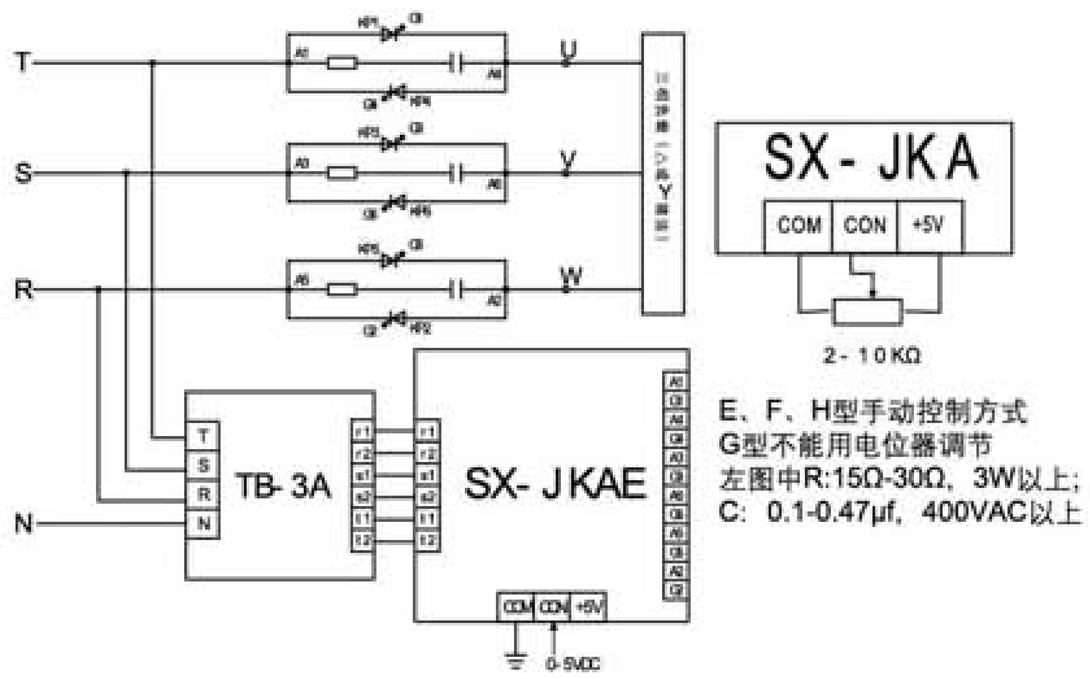


三相触发器系列按控制信号的不同分E、F、G、H等四类，以下为规格型号表:

CON0-5V：E型	CON0-10V：F型	CON4-20mA：G型	CON1-5V：H型
SX-JKAE	SX-JKAF	SX-JKAG	SX-JKAH
SX-JKTE	SX-JKTF	SX-JKTG	SX-JKTH
SX-JKZE	SX-JKZF	SX-JKZG	SX-JKZH
SX-JKBE	SX-JKBF	SX-JKBG	SX-JKBH

三相调压单硅移相触发器模块(SX-JKA)

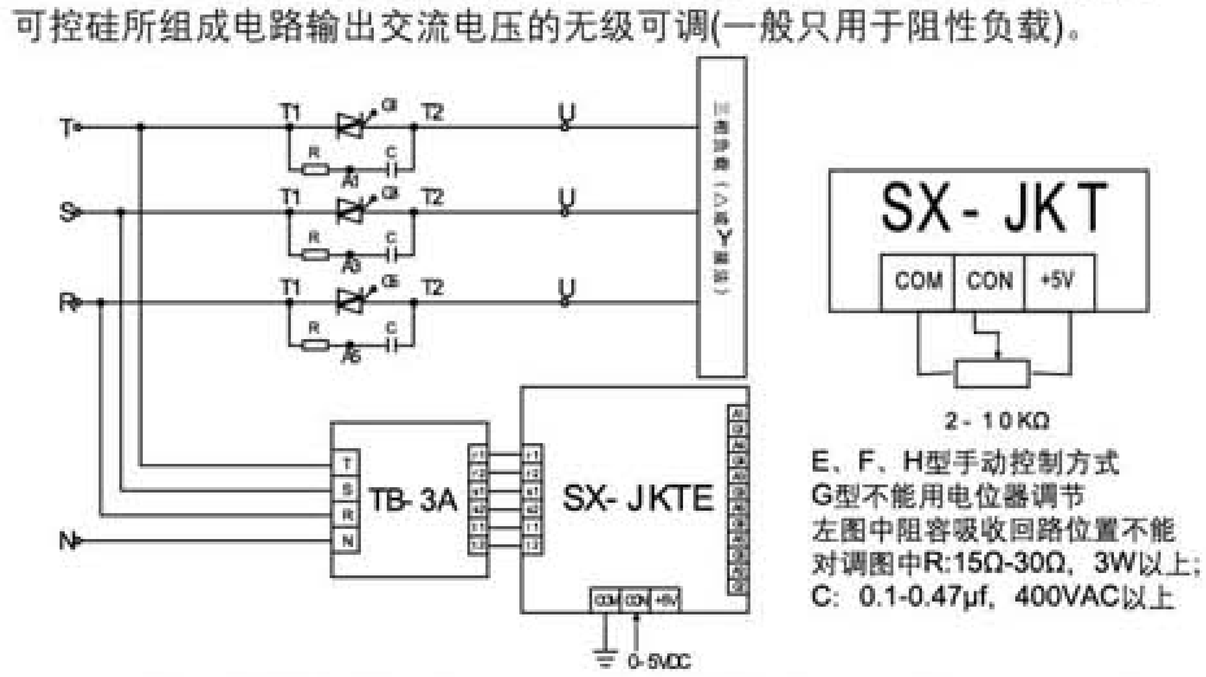
X-JKA 在三相S调压同步变压器模块TB-3A的支持下，即可实现三组反并联单向可控硅所组成电路输出交流电压的无级可调。



图A: SX-JKA、TB-3A和6只单向可控硅组成的三相交流调压电路图

三相调压双硅移相触发器模块(SX-JKT)

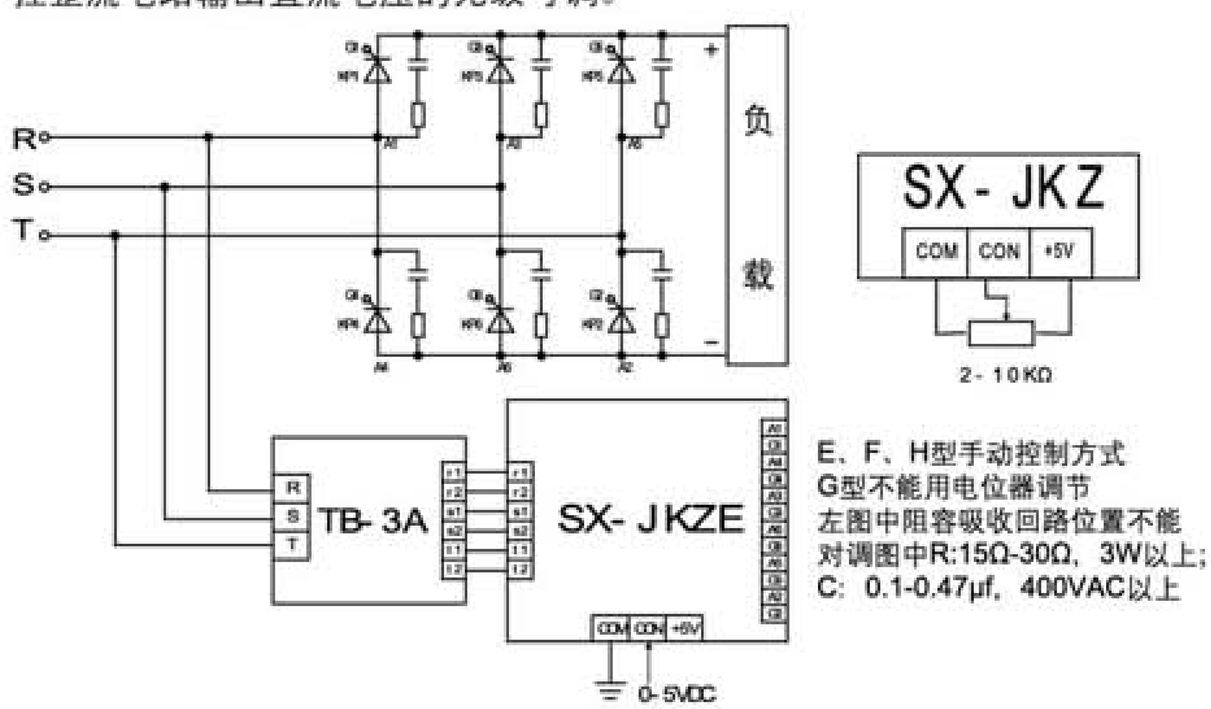
SX-JKT在三相调压同步变压器模块TB-3A的支持下，即可实现三只双向可控硅所组成电路输出交流电压的无级可调(一般只用于阻性负载)。



图B: SX-JKT、TB-3A和3只双向可控硅组成的三相交流调压电路图

三相全控整流移相触发器模块(SX—JKZ)

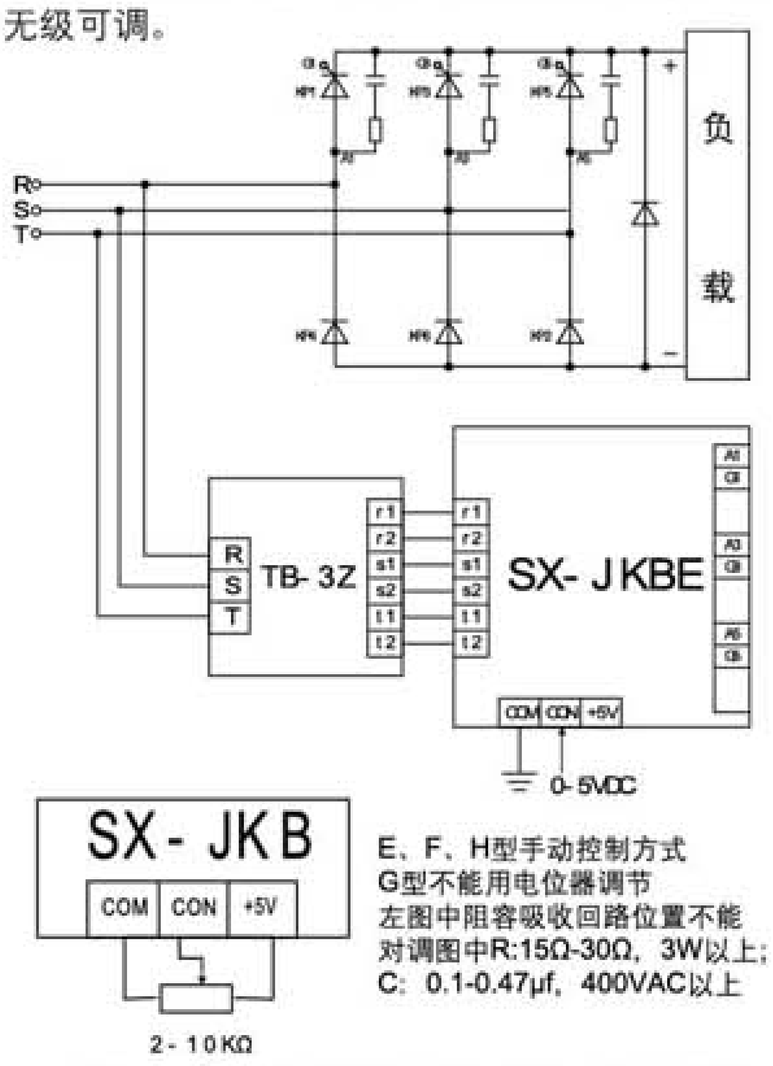
SX、JKZ在三相整流同步变压器模块TB-3Z的支持下，即可实现三相全控整流电路输出直流电压的无级可调。



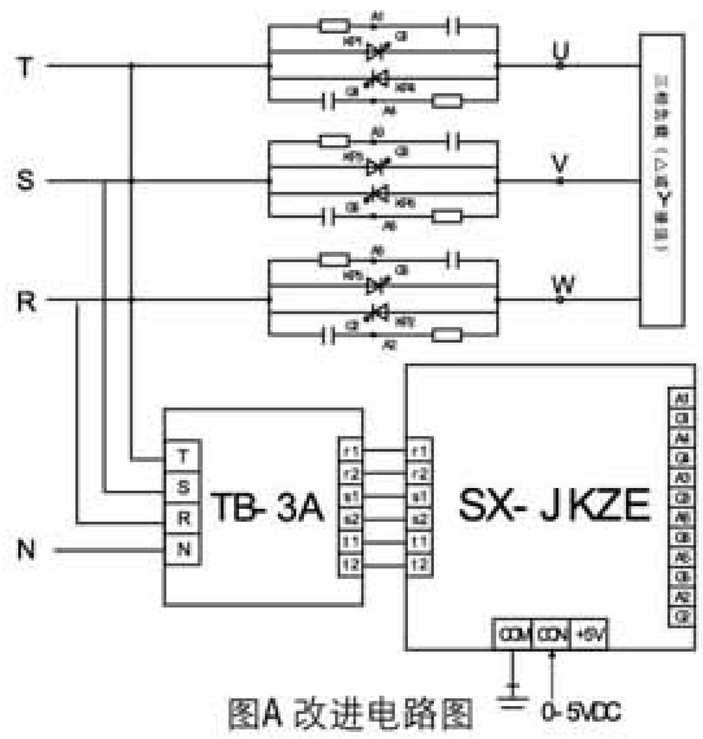
图C: SX-JKZ、TB-3Z和6只单向可控硅组成的三相全控整流线路图（注: R、S、T有相序要求）（参见下面图C改进电路图）

三相半控整流移相触发器模块(SX-JKB)

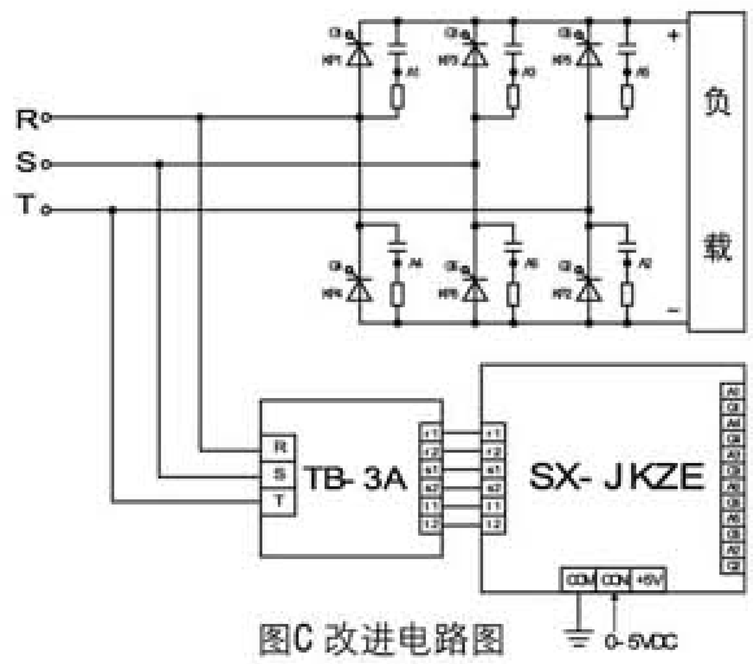
SX-JKB在三相整流同步变压器模块TB-3Z的支持下，即可实现三相半控整流电路输出直流电压的无级可调。



图D: SX-JKB、TB-3Z和3组单向可控硅/整流二极管组成的三相半控整流线路图（注: R、S、T有相序要求）



图A 改进电路图



图C 改进电路图

专业提供电力电子散热解决方案 전문 전력 산열기 솔루션

型号 Type	外形尺寸 Dimensions (mm) L	D	H
SL-5A	42	20	24
SL-10A	53	22	26
SL-20A-1	60	30	33
SL-20A-2	68	33	36
SL-50A-1	73	32	45
SL-50A-2	77	40	53
SL-50A-3	82	45	54
SL-100A-1	62	63	73

型号 Type	外形尺寸 Dimensions (mm) L	D	H
SL-100A-2	65	73	76
SL-200A-1	78	82	90
SL-200A-2	82	85	96
SL-200A-3	85	88	103
SL-300A-1	82	85	96
SL-300A-2	83	86	102
SL-300A-3	94	109	107
SL-500A-1	99	115	110
SL-500A-2	140	140	130

桥堆配套散热器

整流桥配套散热器

模块配套散热器 A

模块配套散热器及风扇组合

固态继电器配套散热器

模块配套散热器 B

模块配套散热器 C

柳晶专利配套散热器

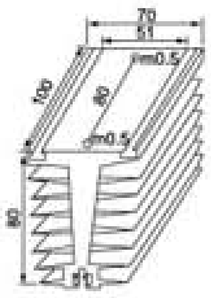
水冷单管全系列散热器

水冷双管全系列散热器

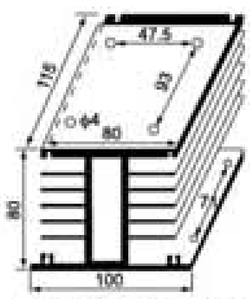
风冷单管散热器

风冷双管散热器

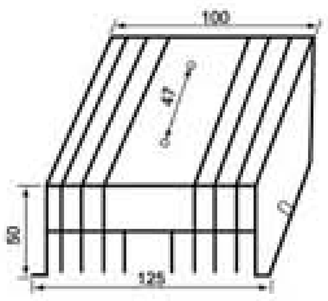
固态、模块散热器外形尺寸 Solid State and Relay Module Heatsink External Dimensions



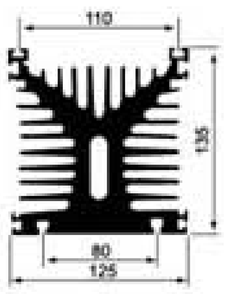
模块、固态25-120A
代号: M1



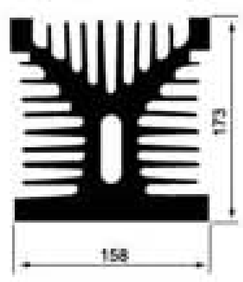
三相固态10-100A
代号: M2



单相固态10-80A
代号: M3

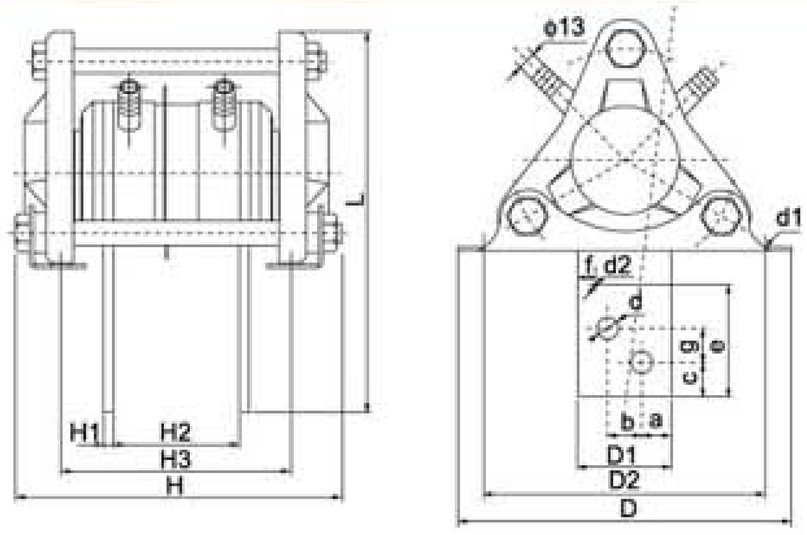


模块、固态110-800A
代号: M4

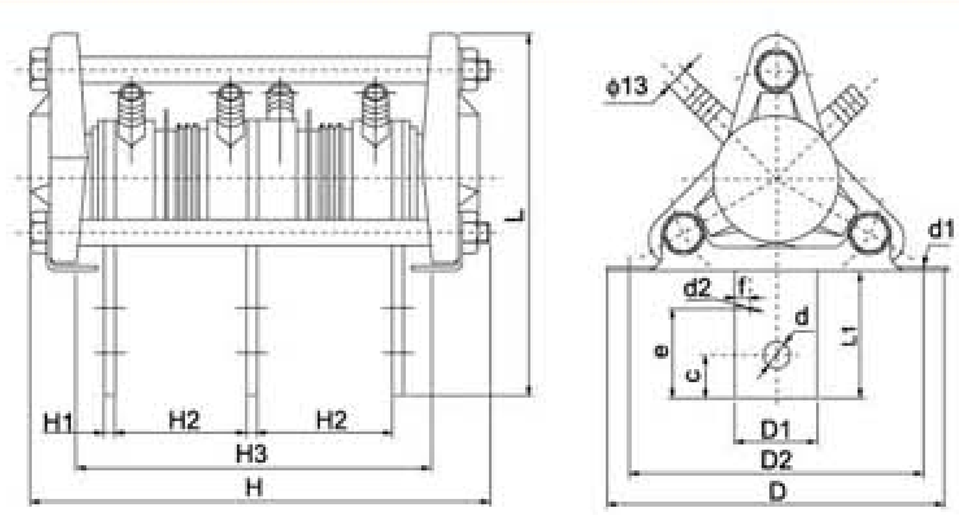


模块400-800A
代号: M5

SS11、SS12、SS13BL、SS14BL 水冷散热器 Water-cooling Heatsinks



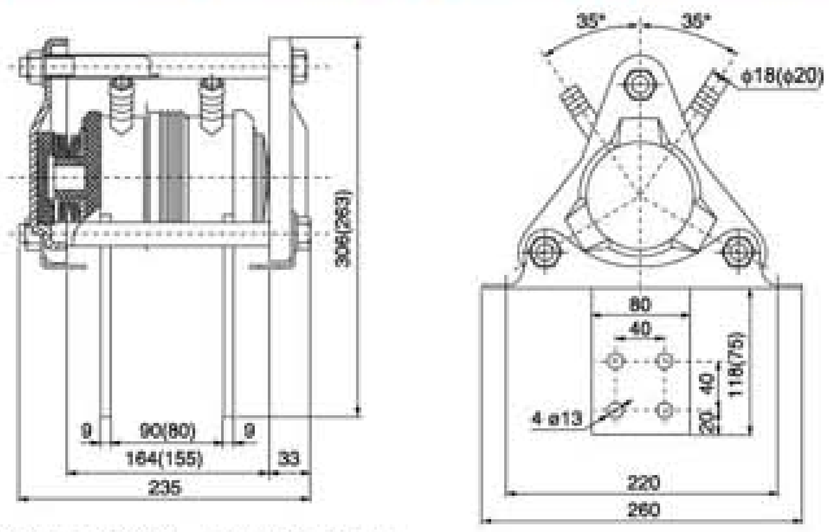
SS11、SS12 单管水冷散热器



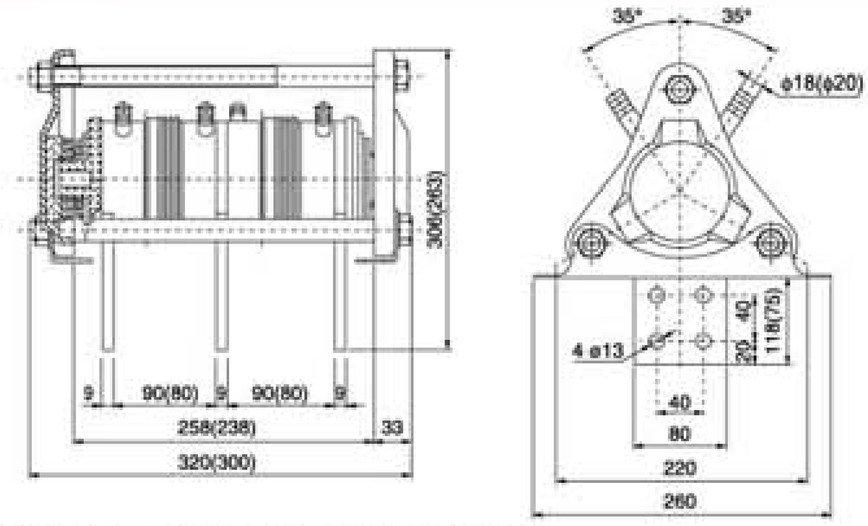
SS13BL、SS14BL双管双连水冷散热器

型号 Type	外形尺寸(mm) Dimensions			导电排尺寸(mm) Dimension of conducting bar			安装尺寸(mm) Installation dimension											
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	b	c	e	f	g	a
SS11	140	135	145.5	53	4	30	112	64	105	2-ϕ9	9x14	M3	/	20	35	6	/	45
SS12	190	160	152	78	5	40	140	64	105	2-ϕ13	11x14	M3	/	20	60	8	/	45
SS11BL	140	135	215	53	4	30	112	64	147	3-ϕ9	9x14	M3	/	20	35	6	/	
SS12BL	190	160	220	78	5	40	140	64	172	3-ϕ13	11x14	M3	/	20	65	8	/	
SS13	190	160	152	78	6	50	140	64	105	4-ϕ13	11x13	M3	20	15	60	8	20	45
SS14	220	195	188	85	6	55	165	74	130	4-ϕ13	11x13	M3	20	20	65	10	20	45
SS13BL	190	160	220	78	6	50	140	64	172	4-ϕ13	11x13	M3	20	15	60	8	20	
SS14BL	220	195	268	85	6	55	165	74	210	4-ϕ13	11x13	M3	20	20	65	10	20	

SS15、SS15BL水冷散热器 Water-cooling Heatsinks

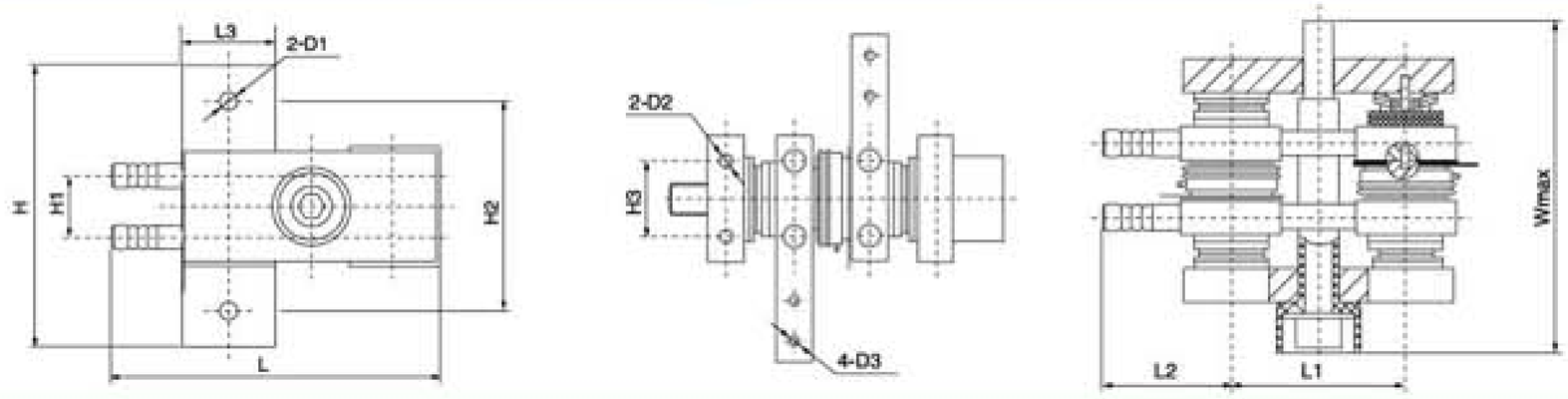


SS15 单管水冷散热器



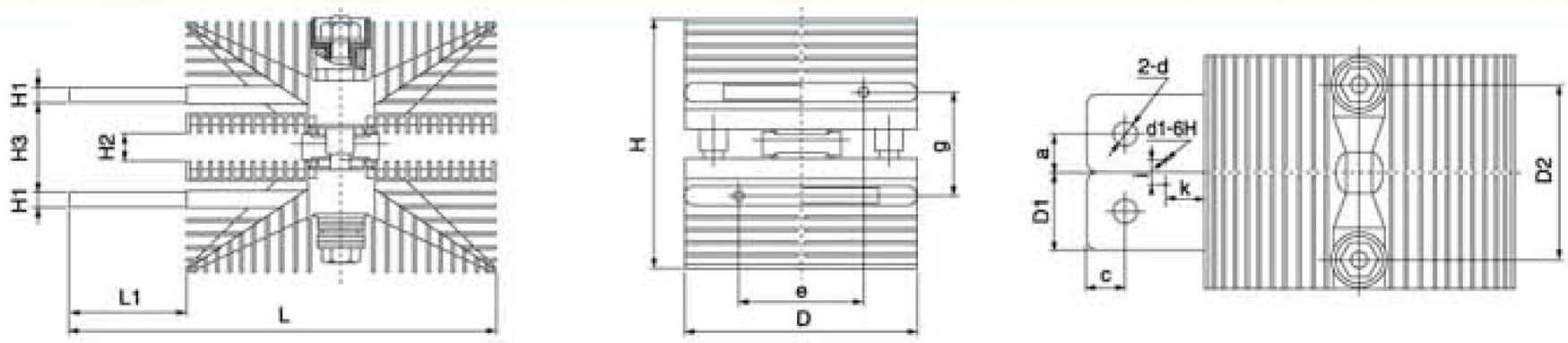
SS15BL 双管双连水冷散热器

DSS3、DSS5、DSS6、DSS8反并联散热器 Counter-abreast Heatsinks



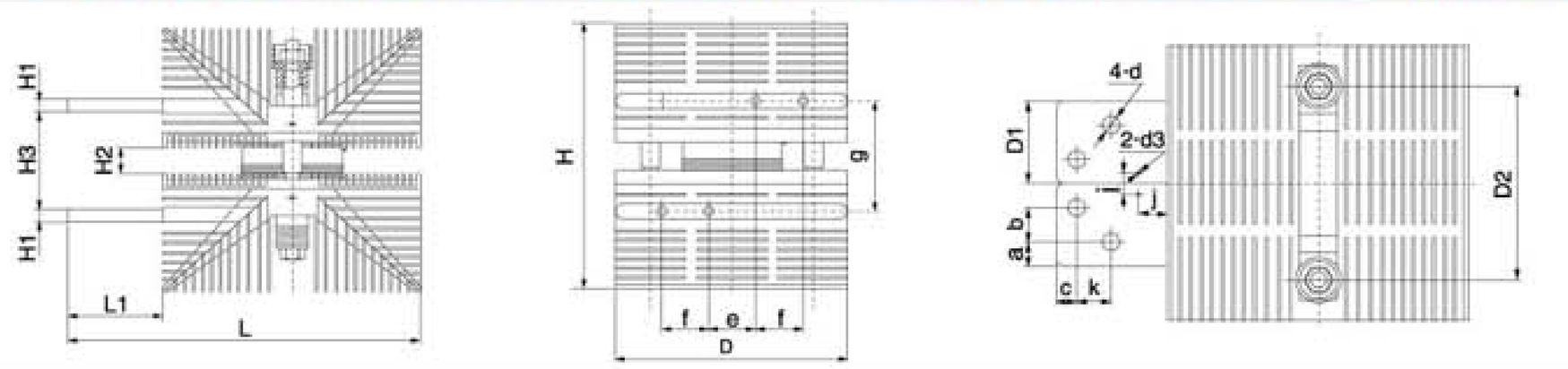
型号 Type	外形尺寸(mm) Dimensions						安装尺寸(mm) Installation dimension					
	L	L1	L2	L3	H	H1	H2	H3	D1	D2	D3	Wmax
DSS3	140	70	50	40	118	25	88	25	ϕ8.2	M5 x 7	M3 x 6	135
DSS5	170	88	57	50	130	30	100	30	ϕ11	M6 x 15	M3 x 6	155
DSS6	148	93	59.5	55	151	35	121	35	ϕ11	M6 x 15	M3 x 6	155
DSS8	202	100	62	60	190	50	160	50	ϕ11	M6 x 10	M3 x 6	160

SF11、SF12、SF13风冷散热器 Air-cool Heatsinks



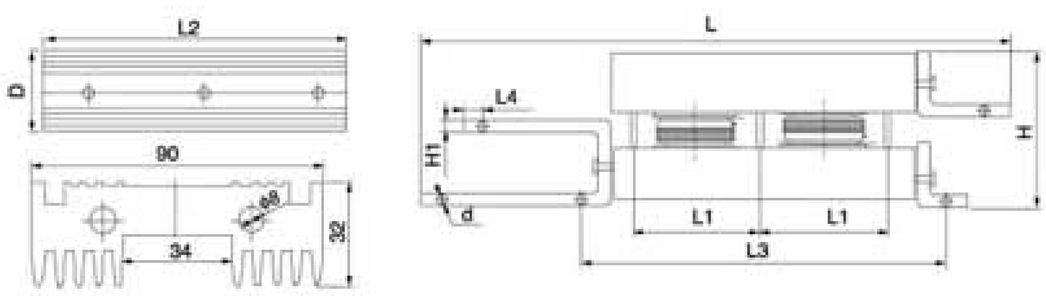
型号 Type	外形尺寸 (mm) Dimensions			导电排尺寸(mm) Dimension of conducting bar			安装尺寸(mm) Installation dimension										
	L	D	H	L1	D1	H1	D2	H2	H3	d	d1	a	c	e	g	i	k
SF11	190	105	95	45	30	8	60	15	22	ϕ13	M3	20	18	55	30	6	20
SF12	200	110	125	60	40	8	80	15	22	ϕ13	M3	20	20	55	30	6	20
SF13	220	120	130	60	40	8	90	15	45	ϕ13	M3	20	20	64	53	6	20

SF14、SF15、SF16、SF17、SF18单管风冷散热器 Single Tube Air Cooling Heatsinks



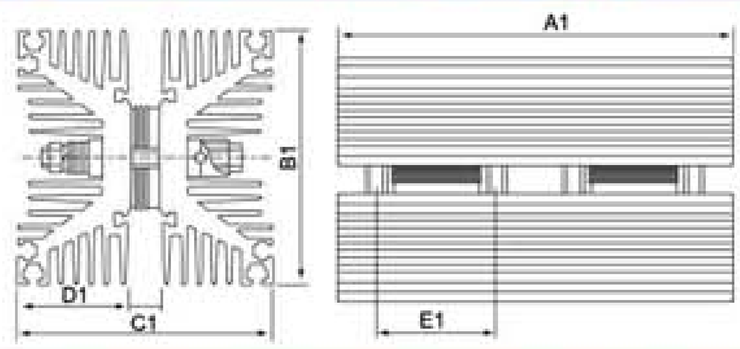
型号 Type	外形尺寸 (mm) Dimensions			导电排尺寸(mm) Dimension of conducting bar			安装尺寸(mm) Installation dimension													
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	a	b	c	e	f	g	i	j	k
SF14	250	140	145	80	50	10	105	15	45	ϕ11	M6	12.5	25	12.5	40	35	55	8	20	25
SF15	280	140	165	80	60	12	105	15	50	ϕ11	M6	17.5	25	15	40	35	62	8	20	25
SF16	280	180	200	80	60	12	130	15	66	ϕ13	M6	17.5	25	15	30	40	78	8	20	25
SF17	300	200	215	80	60	12	130	15	73	ϕ13	M6	17.5	25	15	40	40	85	8	20	25
SF18	300	200	224	80	60	12	130	24	82	ϕ13	M6	17.5	25	15	40	40	94	8	20	25

软起动散热器 Soft Start Heatsinks



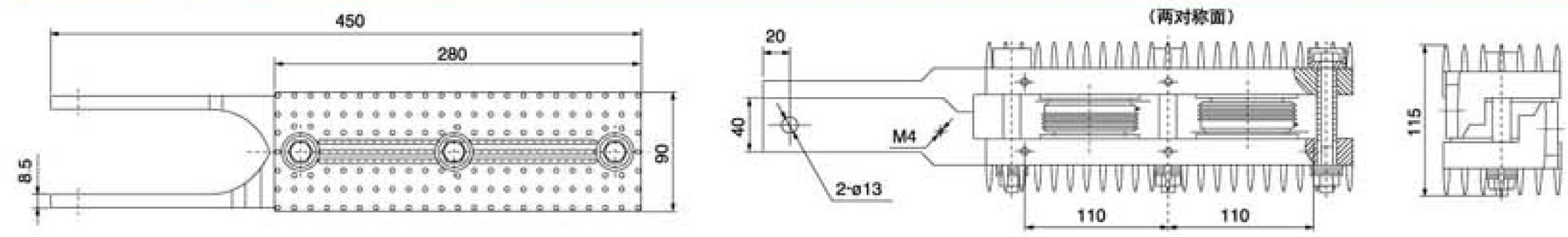
型号 Type	外形尺寸 (mm) Dimensions			安装尺寸(mm) Installation dimension					
	L	D	H	L1	L2	L3	L4	H1	d
SL500	500	65	95	85	212	270	20	5	ϕ11 x 7
SL1000	530	78	95	100	242	300	20	6	ϕ11 x 7
SL2000	560	90	95	115	272	330	20	6	ϕ11 x 7

风冷反并联散热器 Inverse Parallel Air Cooling Heatsinks



型号 Type	A1	B1	C1	D1	E1
XSF-12(200A)	235	130	145	60	80
XSF-12(300A)	255	130	145	60	90
XSF-15(500-800A)	295	200	176	75	105
XSF-15(800-1000A)	350	200	176	75	130
XSF-15(1500A)	620	200	176	75	140

叉指散热器 Interdigital Heatsinks

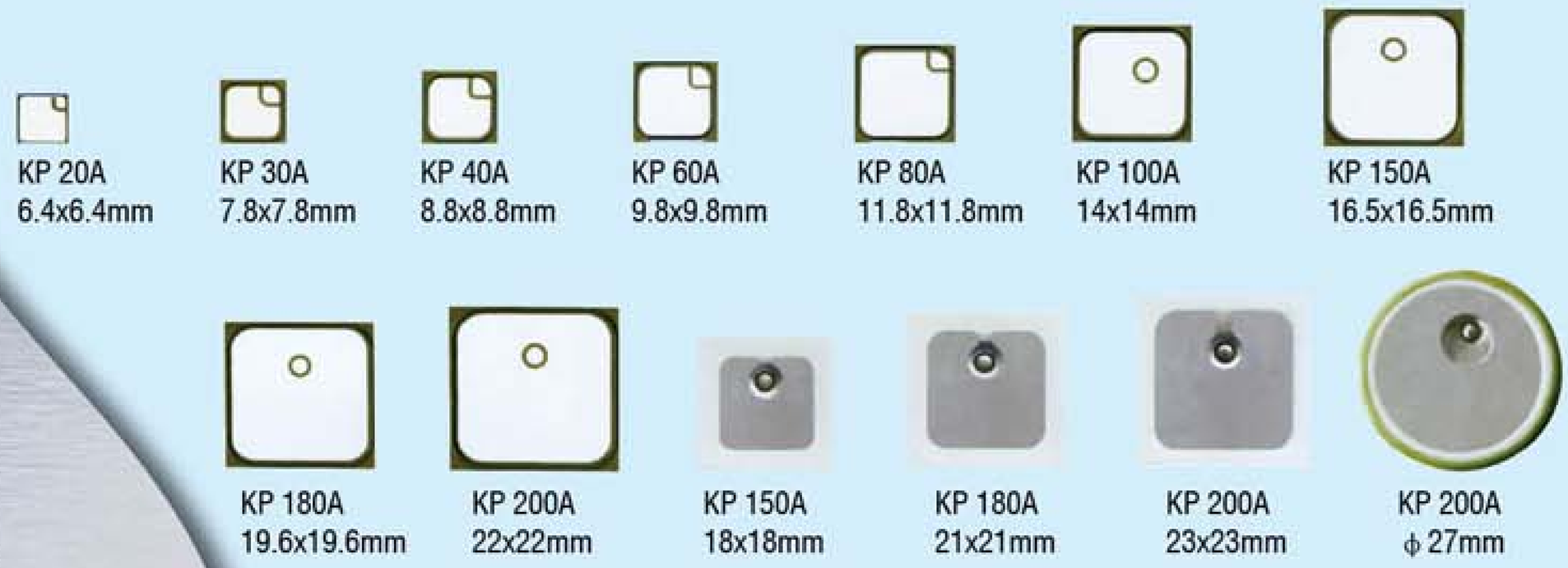


전력반도체 칩 솔루션 서비스 제공

LiUjiNG® Liujing Electronics

专业提供电力电子芯片解决方案
전력전자 소루션 방안 제공

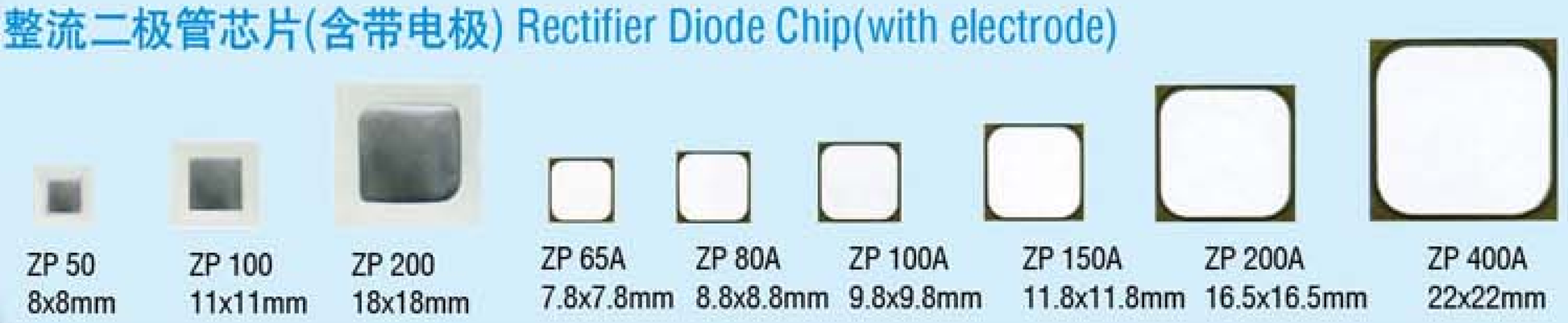
单向可控硅芯片(含带电极) One-way Controllable Silicon Chip(with electrode)



유용한 정보의 공유와 고객과의 원활한 Community의 도구로 활용하며
변함없이 성실한 모습과 노력하는 자세로 고객의 가장 가까운 곳에서
고객만족을 실현해 나갈 것 입니다.

型号 Type	电流	芯片尺寸 Chip size	断态/反向重复峰值电压	控制极触发电流	控制极触发电压	通态不重复浪涌电流	维持电流	通态电压临界上升率	通态电流临界上升率	通态峰值电压
	I		V_{DRM}/V_{RRM}	I_{GT}Max	V_{GT}Max	I_{TSM}	I_HMax	dv/dt	di/dt	V_{TM}
	A	mm	V	mA	V	A	mA	V/μs	A/μs	V
KP5A	5	4.5x4.5	1200-1600	20	1.2	50	30	500	10	1.50
KP10A	10	5.5x5.5	1200-1600	20	1.2	100	30	500	10	1.50
KP20A	20	6.4x6.4	1200-1600	20	1.2	200	35	500	15	1.50
KP30A	30	7.8x7.8	1200-1600	40	1.2	300	60	500	50	1.50
KP40A	40	8.8x8.8	1200-1600	40	1.2	400	60	500	50	1.50
KP60A	60	9.8x9.8	1200-1600	40	1.2	600	60	500	50	1.50
KP80A	80	11.8x11.8	1200-1600	40	1.2	800	60	500	50	1.50
KP100A	100	14x14	1200-1600	80	1.5	1000	100	800	100	1.50
KP150A	150	16.5x16.5	1200-1600	80	1.5	1500	120	800	100	1.50
KP180A	180	19.6x19.6	1200-1600	100	1.5	2000	120	800	100	1.60
KP200A	200	22x22	1200-1600	100	1.5	2200	120	800	100	1.60

整流二极管芯片(含带电极) Rectifier Diode Chip(with electrode)



型号 Type	芯片尺寸 Chip size	正向平均电流	反向重复峰值电压	通态不重复浪涌电流	通态峰值		T_C=25℃	T_C=150℃	备注 Remarks
		I_F	V_{RRM}	I_{TSM}	V_{TM}	I_{TM}	I_R	I_R	
	mm	A	V	A	V	A	mA	mA	
ZP30A	4.5x4.5	30	1600	300	1.25	90	0.02	1.50	玻钝面为阳极 Glass passivated face is anode
ZP40A	5.5x5.5	40	1600	400	1.25	120	0.02	1.50	
ZP50A	6.4x6.4	50	1600	500	1.25	150	0.03	2.50	
ZP65A	7.8x7.8	65	1600	650	1.25	200	0.03	3.00	
ZP80A	8.8x8.8	80	1600	800	1.25	240	0.05	3.50	
ZP100A	9.8x9.8	100	1600	1000	1.25	300	0.05	4.00	
ZP150A	11.8x11.8	150	1600	1500	1.25	450	0.05	4.50	
ZP200A	16.5x16.5	200	1600	2000	1.25	600	0.08	6.00	
ZP400A	22x22	400	1600	4000	1.25	800	1.00	8.00	

电焊机专用芯片(含带电极) Exclusive Chips for Electric Welder(with electrode)

KE 80A
9.8x9.8mm

KE 100A
11.8x11.8mm

KE 120A
14x14mm

KE 180A
16.5x16.5mm

KE 200A
16.5x19.5mm

KE 250A
19.5x19.5mm

KE 100A
13x13mm

KE 120A
15x15mm

KE 180A
18x18mm

KE 200A
18x21mm

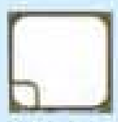
KE 250A
21x21mm

型号 Type	电流	芯片尺寸 Chip size	断态/反向重复峰值电压	控制极触发电流	控制极触发电压	通态不重复浪涌电流	维持电流	通态电压临界上升率	通态电流临界上升率	通态峰值电压
	I		V_{DRM}/V_{RRM}	I_{GT}Max	V_{GT}Max	I_{TSM}	I_HMax	dv/dt	di/dt	V_{TM}
	A	mm	V	mA	V	A	mA	V/μs	A/μs	V
KE80A	80	9.8x9.8	600	60	1.2	80x15	80	800	50	1.35
KE100A	100	11.8x11.8	600	80	1.2	100x15	100	800	50	1.35
KE120A	120	14x14	600	80	1.2	120x15	100	800	100	1.35
KE180A	180	16.5x16.5	600	80	1.2	180x15	100	800	100	1.40
KE200A	200	16.5x19.5	600	100	1.2	200x15	120	1000	100	1.40
KE250A	250	19.5x19.5	600	120	1.2	250x15	150	1000	100	1.40

전기 가열, 성형,건조 그리고 다른 어플리케이션을 위해 thyristor power controller 를 설계하는 분야에서 선구자적인 위치에 있습니다.이런 분야

双向可控硅芯片(含带电极) Two-way Controllable Silicon Chip(with electrode)

KS 60A
7.8x7.8mm


KS 80A
9.8x9.8mm

KS 100A
11.8x11.8mm

KS 150A
14x14mm

KS 200A
17x17mm

KS 60A
9x9mm

KS 80A
11x11mm

KS 100A
13x13mm

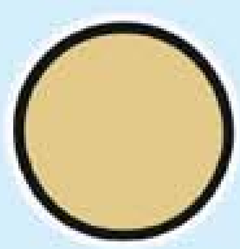
KS 150A
15x15mm

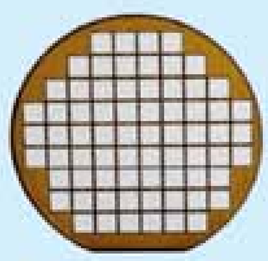
KS 200A
18x18mm

型号 Type	电流	芯片尺寸 Chip size	断态/反向重复峰值电压	控制极触发电流	控制极触发电压	通态不重复浪涌电流	维持电流	通态电压临界上升率	通态电流临界上升率	通态峰值电压
	I		V_{DRM}/V_{RRM}	I_{GT}Max	V_{GT}Max	I_{TSM}	I_HMax	dv/dt	di/dt	V_{TM}
	A	mm	V	mA	V	A	mA	V/μs	A/μs	V
KS60A	60	7.8x7.8	800-1600	50	1.2	600	80	500	50	1.50
KS80A	80	9.8x9.8	800-1600	50	1.2	800	80	500	50	1.50
KS100A	100	11.8x11.8	800-1600	50	1.2	1000	80	500	50	1.50
KS150A	150	14x14	800-1600	80	1.5	1500	100	500	50	1.50
KS200A	200	17x17	800-1600	100	1.5	2000	120	500	50	1.50

에서는 전력, 전류 및 전압 제어를 위해 고도의 정밀성과 효율성 및 재생산성이 요구되어 집니다.

进口芯片 Imported chips





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